GEOMETRY — MODEL NO 1

Q1 *Choose the correct answer:*

(1) The length of two sides in an isosceles triangle are **4** cm , **9** cm, then the length of the third side = …………. cm

a) 4   b) 5   c) 9   d) 13

(2) If the measure of two angles in a triangle are 55° , 70°, then the triangle is ……………………… triangle

a) Isosceles   b) Equilateral   c) Scalene   d) Obtuse

(3) The measure of the exterior angle of an equilateral triangle= ….^{o}

a) 60   b) 120   c) 180   d) 360

(4) In $\triangle$ ABC, AC + BC − AB …………. zero

a) $\leq$ b) >   c) =   d) <

(5) The length of hypotenuse = ………… the length of the median whose drawn from the vertex of right angle

a) Half   b) Third   c) Quarter   d) Twice

(6) If X $\in$ axis of symmetry of $\overline{BC}$, then $\overline{XB}$ ……. $\overline{XC}$

a) >   b) =   c) <   d) $\equiv$

Q2 *Complete each of the following:*

1) The intersecting point of the medians of triangle divide each of them with ratio **1** : .... From the vertex.

2) In $\triangle$ ABC, AB = 6 cm , BC = 8 cm, AC = 4 cm, then m($\angle$C) > m(….)

3) The longest side in the right angled-triangle is …………..

4) If ABCD is a parallelogram, m($\angle$A)+m($\angle$C)=110°, then m($\angle$D)=..

5) If the length of any side of a triangle = $\frac{1}{3}$ perimeter of triangle, then the triangle has ……………… axes of symmetry

Q3 **A) In the opposite figure:**

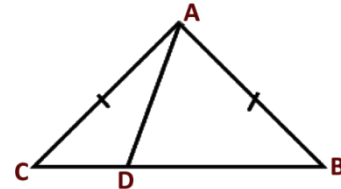$\triangle$ ABC , F,E are midpoint of $\overline{AB}$, $\overline{AC}$ respectively

$\overline{AD} \perp \overline{BC}$, AB = 8 cm , AC = 10 cm, BC = 12 cm

✎ **Find** the perimeter of $\triangle$ DFE

_____
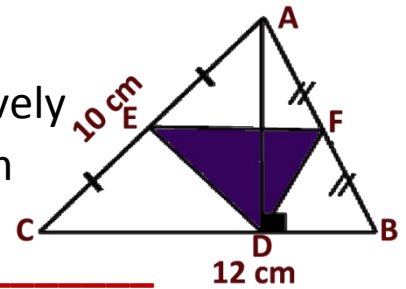
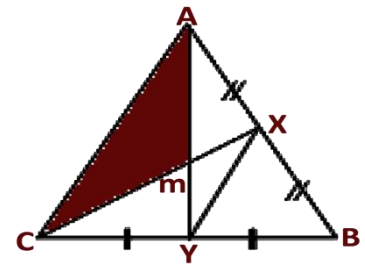**B) In the opposite figure:**

AB = AC,

Prove that: AB > AD

_____

Q4 **A) In the opposite figure:**

X , Y midpoints of $\overline{AB}$, $\overline{BC}$ respectively

$\overline{AY} \cap \overline{XC}$ = {m}, XY = 6 cm, MY = 4 cm
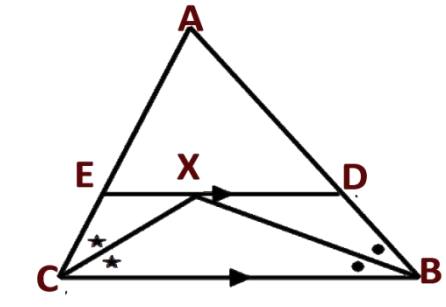
XC = 9 cm. **Find the perimeter of** $\triangle$ **ABC**

_____

B) In the opposite figure:

AB = 8 cm, AC = 6cm

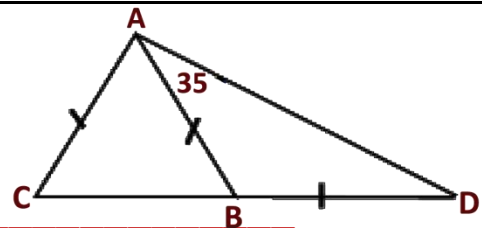$\overline{DE}$ // $\overline{BC}$, $\overline{BX}$ bisects $\angle$ (DBC) ,

$\overline{CX}$ bisects $\angle$ (BCE)

Find the area of $\triangle$ **ADE**

_____

Q5 **A) In the opposite figure:**

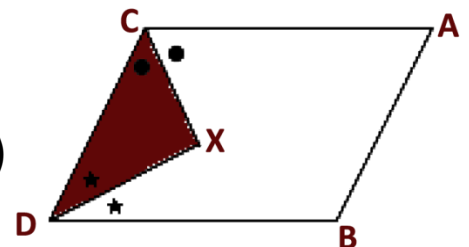AB = BC = AC , m ($\angle$ DAB) = 35°

Find by proof m ($\angle$ BAC)

_____

B) In the opposite figure:

ABCD is a parallelogram,

$\overline{XD}$ Bisects $\angle$ (BDC), $\overline{XC}$ Bisects $\angle$ (ACD)

Prove that: AB > XC

— ◆ ◆ ◆ —

End of the questions

GEOMETRY — MODEL NO 2

Q1 *Choose the correct answer:*

(1) In △ ABC, $\overline{AD}$ is median, m is concurrence point, then AM=…. AD

a) 2   b) $\dfrac{1}{2}$ c) $\dfrac{1}{3}$ d) $\dfrac{2}{3}$

(2) △ XYZ, XY = XZ, then the exterior angle at Vertex **Z** is ……..

a) Acute   b) Right   c) Obtuse   d) Reflex

(3) A triangle its sides **4** cm, **7** cm, **X** cm, then X ∈ ………

a) [3 , 11]   b)] 3 , 11 [c) [3 , 11[d)] 3 , 11]

(4) The triangle has two angles of measure **50°**, **60°**, then the number of axes of symmetry ………………………..

a) Zero   b) 1   c) 2   d) 3

(5) Length of hypotenuse= ……….. the side opposite to **30°**

a) 2   b) $\dfrac{1}{2}$ c) $\dfrac{1}{3}$ d) 3

(6) In △ ABC, AB = AC, m (∠ A) = 50°. then BC ……….. AB

a) <   b) =   c) >   d) ≡

Q2 *Complete each of the following:*

1) In △ ABC, D is midpoint of $\overline{BC}$, AD = $\dfrac{1}{2}$ BC, then m (∠ A) = …….

2) The bisector of vertex of isosceles triangle bisects ……………… and perpendicular to it.

3) In △ ABC, AB + BC > …………………

4) If the vertically opposite angles are complementary, then the measure of each one = …………..°

5) The axis of symmetry of a line segment is straight line ……………

《Q3》 A) In the opposite figure:

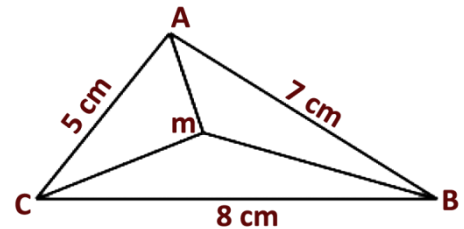M ($\angle$ ABC) = 90^0, E midpoint of $\overline{AD}$

F midpoint of $\overline{AC}$, AD = 10 cm, DC = 6 cm

AC = 12 cm. **find the perimeter of** $\triangle$ **BEF**

_____
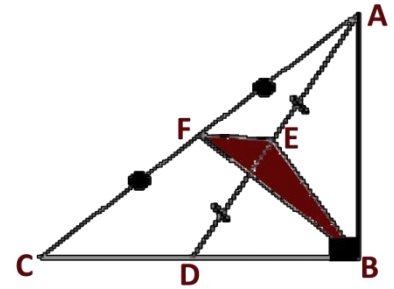
B) In the opposite figure:

Prove that:

MB + MA + MC > 10 cm

_____
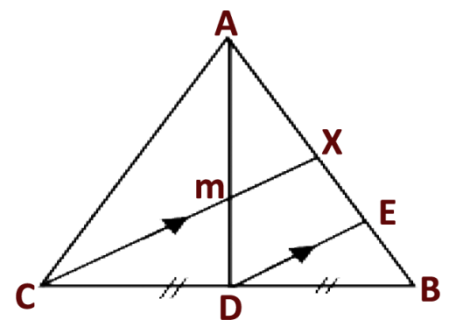
《Q4》 A) In the opposite figure:

D is midpoint of BC, $\overline{AD} \cap \overline{CX}$ = { m }
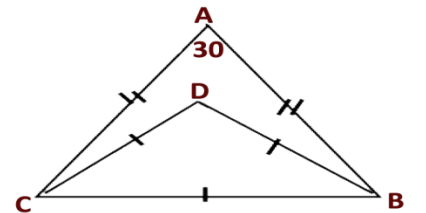
AM : MD = 2 : 1, $\overline{DE}$ // $\overline{XC}$

If XM = 6 cm

Find the length of $\overline{DE}$**?**

_____

B) In the opposite figure:
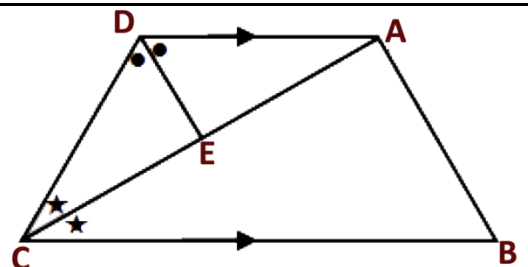
BD = DC = CB , AB = AC

M ($\angle$ BAC) = 30^0, **Find the m (** $\angle$ **ABD)?**

_____

《Q5》 A) In the opposite figure:

$\overrightarrow{AD}$ // $\overline{BC}$, $\overrightarrow{DE}$ bisects ($\angle$ADC),

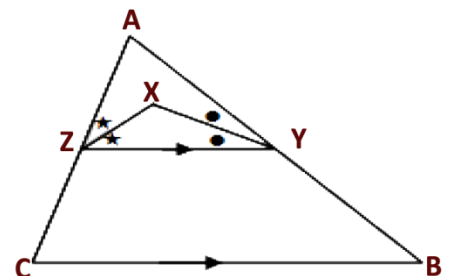$\overrightarrow{CA}$ bisects ($\angle$BCD), **Prove that:**

① E midpoint of $\overline{AC}$ ② $\overline{DE} \perp \overline{AC}$

_____

B) In the opposite figure:

AB > AC, $\overline{YZ}$ // $\overline{BC}$, $\overline{XY}$ bisects $\angle$ (AYZ)

$\overline{XZ}$ bisects ($\angle$AZY).

Prove that: XY > XZ

---◆---

End of the questions

GEOMETRY — MODEL NO 3

Q1 *Choose the correct answer:*

(1) $\overline{AD}$ is a median in $\triangle$ ABC, AD = $\frac{1}{2}$ BC, then $\angle$ A is ……………

a) Acute   b) Obtuse   c) Right   d) Straight

(2) The measure of exterior angle of an equilateral triangle = ……^{o}

a) 60   b) 90   c) 120   d) 180

(3) If the length of any side of triangle = $\frac{1}{3}$ its perimeter, then the number of axes of symmetry of this triangle is ……………

a) Zero   b) 1   c) 2   d) 3

(4) In $\triangle$ ABC, AB + BC − CA > ……..

a) Zero   b) 1   c) 2   d) 3

(5) ABCD is a rhombus, AC > BD, then m ($\angle$ D) ……….. m ($\angle$ C)

a) >   b) =   c) <   d) $\leq$

Q2 *Complete each of the following:*

1) If **5 , 7 , X** are lengths of triangle sides, then X $\in$] …….. , …….. [

2) Any point lies on axis of symmetry of a line segment is …………. From its terminals.

3) If the measures of two angles are different then the greatest in measure is opposite to a side of ………………………

4) The bisector of the vertex angle of an isosceles triangle……………

5) In $\triangle$ ABC, AB = AC, m ($\angle$ A) = 3 m ($\angle$ B), then m($\angle$C) = ………..^{o}

6) In $\triangle$ ABC if $\overline{AB} \perp \overline{BC}$ and AB = BC then m ($\angle$ A) = …………^{o}
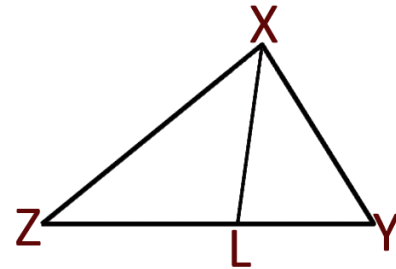
⟨Q3⟩ A) In the opposite figure:

M is intersection point of medians
ME = 3 cm, MD = 4 cm, DE = 5 cm.
Find the perimeter of △ MBC

_____
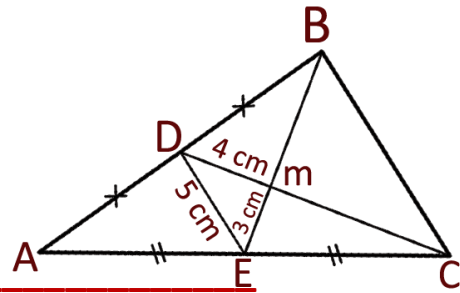
B) In the opposite figure:

In △ XYZ, L ∈ YZ
Prove that:
Perimeter of △ XYZ > 2 X L

_____

⟨Q4⟩ A) In the opposite figure:

XY > XL, ZY = ZL
Prove that:
m (∠XLZ) > m (∠XYZ)

_____
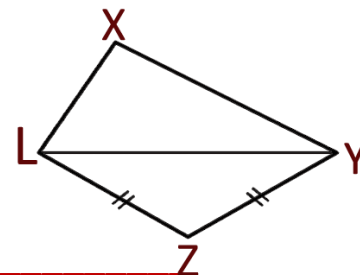
B) In the opposite figure:

AD // BC, m (∠BCD) = 82°, m(∠ABD) =38°
M(∠BCD) =60°. **Prove that:**
△ ABD is an isosceles triangle

_____
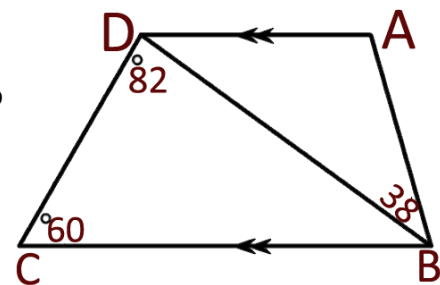
⟨Q5⟩ A) In the opposite figure:
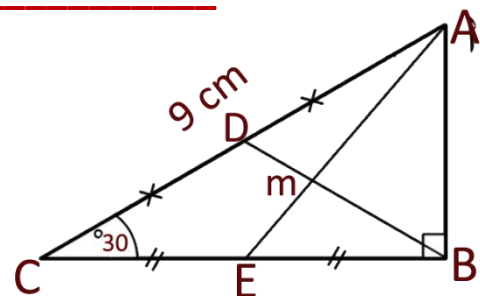
If $\overline{DE}$ // $\overline{AB}$
$\overrightarrow{DE}$ Bisects ∠ BDC
Prove that: AC > BC

_____
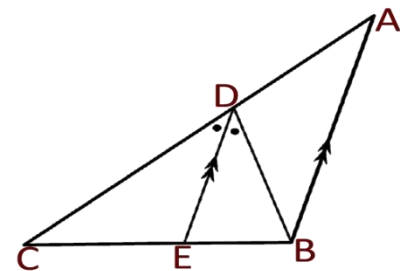
B) In the opposite figure:

△ ABC is right at B, m(∠C) = 30°,
D is midpoint of $\overline{AC}$, E is midpoint of $\overline{BC}$
AC = 9 cm. Find length of $\overline{BM}$, $\overline{AB}$

— ◆ ◆ ◆ —

End of the questions

GEOMETRY — MODEL NO 4

Q1 Choose the correct answer:

(1) $\overline{AD}$ is a median in △ ABC , AD = $\frac{1}{2}$ BC , then (∠A) is ....
a) Acute   b) Right   c) Reflex   d) obtuse

(2) If D ∈ axis of symmetry of $\overline{AB}$, then AD .... BD
a) ⊥   b) =   c) >   d) <

(3) The triangle with sides 2 cm , (X+3) cm , 5 cm is isosceles triangle when x =....................
a) − 1   b) 2   c) 3   d) 4

(4) The sum of measures of exterior angles for equilateral triangle =
a) 60°   b) 120°   c) 180°   d) 360°

(5) The intersecting point of the median of triangle divide it with ratio **2** : .... from the base .
a) 1   b) 2   c) 3   d) 4

(6) In the opposite figure:
X =............ °
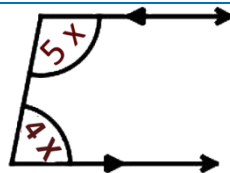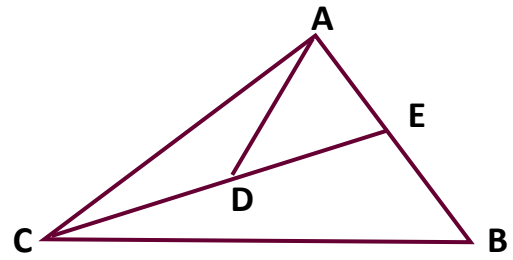

a) 20   b) 40   c) 90   d) 180

Q2 Complete each of the following:

1) If 3 , 4 , x + 2 are sides lengths of a triangle , then X ∈] .... , ... [

2) △ ABC , AB = AC , m(∠A) = 60° and its perimeter = 12 cm , then BC = ...

3) In △ ABC , m(∠B) =90° , m(∠A) = 30° , then AC = ... BC

4) The bisector of the vertex angle in isosceles triangle bisect the base and ....

5) In △ ABC , AB = BC , m(∠B) = 50°, then m(∠A) > ....
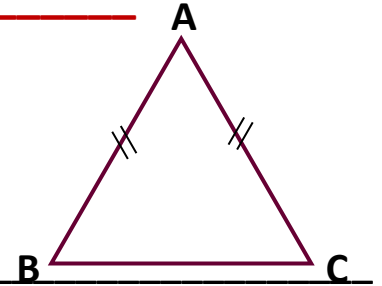
Q3 **A) In the opposite figure:**

AD = CD = ED

Prove that : BC > AC

_____

B) In the opposite figure:
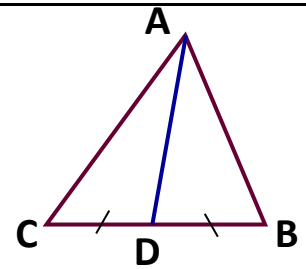
AB = AC , m($\angle$A) = x , m($\angle$B) = 2 x

Find m($\angle$C) in degree.

Q4 **A) In the opposite figure:**

$\triangle$ ABC , D is a midpoint of $\overline{BC}$

Prove that:

Perimeter of $\triangle$ ADC > Perimeter of $\triangle$ ABD

_____

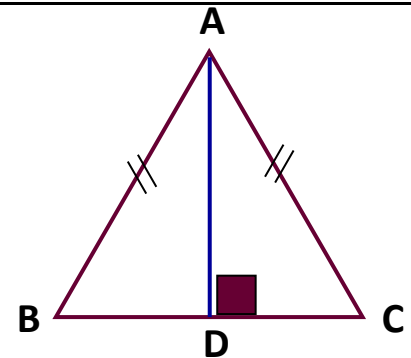**B)** $\triangle$ ABC , m($\angle$A) = 75° , m($\angle$B) = 40° .

Arrange descending the sides' length of triangle ABC.

Q5 **A) In the opposite figure:**

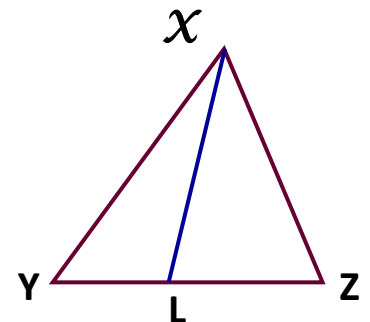AB = AC , $\overline{AD} \perp \overline{BC}$, AB = 13 cm

BC = 10 cm ,

Find: ① Length of $\overline{BD}$

② Area of $\triangle$ ABC

_____

B) In the opposite figure:

Prove that:

Perimeter of $\triangle$ XYZ > 2 XL

——— ◆ ◆ ◆ ———

End of the questions

GEOMETRY — MODEL NO 5

Q1 Choose the correct answer:

(1) The number of axes of symmetry of isosceles triangle = ……………
a) Zero   b) 1   c) 2   d) 3

(2) XA = XB and YA = YB, then $\overleftrightarrow{XY}$ ……….. $\overline{AB}$
a) //   b) $\perp$ c) $\equiv$ d) =

(3) In $\triangle$ ABC, m ($\angle$ C) = 65° , m ($\angle$ A) = 75° then ..
a) AB > BC   b) AB < AC   c) BC > AB   d) AB = AC

(4) If M is the point of intersection of medians of $\triangle$ ABC, D is midpoint of $\overline{BC}$, then AD = …………..
a) 2 AM   b) 4 MD   c) $\frac{2}{3}$ MD   d) $\frac{1}{2}$ AM

(5) The set of numbers can be lengths of sides of triangle are ………
a) {4, 6, 10}   b) {4, 6, 8}   c) {2, 6, 3}   d) {4, 5, 10}

(6) In $\triangle$ ABC, m ($\angle$ A) + m ($\angle$ B) < m ($\angle$ C), then AB …. BC
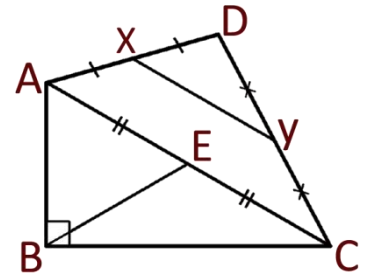a) <   b) =   c) >   d) $\leq$

Q2 Complete each of the following:

1) In the isosceles triangle, if AB = AC, m($\angle$A) = 70° , then AB < .....

2) In $\triangle$ ABC, if m ($\angle$A) = 30° and m($\angle$B) = 90°, then BC = ... AC

3) If the measure of two angles in a triangle are different, then the greater in measure of them is opposite to ……………

4) If the measure of the vertex angle of an isosceles triangle is 80°, then the measure of each of two base angle equal ……..

5) The measure of the exterior angle of the equilateral $\triangle$ = ……….
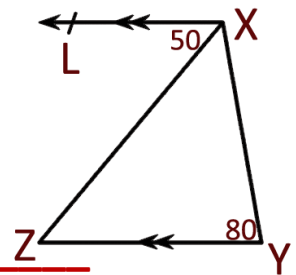
Q3 **A) In the opposite figure:**

X is midpoint of $\overline{AD}$, Y is midpoint of $\overline{CD}$
E is midpoint of $\overline{AC}$, m ($\angle$ ABC) = 90°
XY = 6 cm. Find length of $\overline{BE}$

_____

B) $\triangle$ ABC, D $\in \overline{BC}$, AD = AC
Prove that: AB > AD

_____

Q4 **A) In the opposite figure:**

XL // YZ, m ($\angle$ Y) = 80°
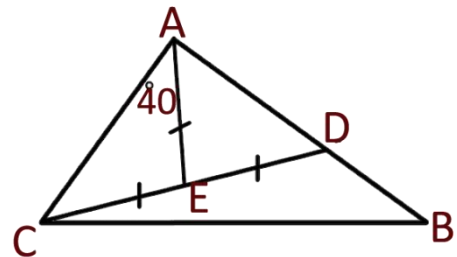M ($\angle$ L X Z) = 50°.
Prove that: XY = Y Z

_____

B) In the opposite figure:

DE = EC = AE
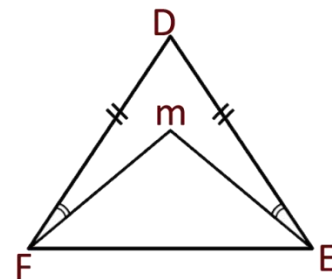M($\angle$ EAC) = 40°
Prove that:
① AC > AE   ② AC < BC

_____

Q5 **A) In the opposite figure:**

If DE = DF, m $\angle$ DEM) = m ($\angle$ DFM)
Prove that:
$\overrightarrow{DM}$ is axis of symmetry of $\overline{EF}$

_____

B) ABCD is a parallelogram, its diagonal intersect at M, draw $\overrightarrow{B X}$
median in $\triangle$ ABD cut $\overline{AD}$ in X, $\overline{AC}$ in N
**Prove that:** AN = $\frac{1}{3}$ AC

▬ • ♦ • ▬

End of the questions

GEOMETRY — MODEL NO 6

Q1 *Choose the correct answer:*

(1) The number of axes of symmetry of equilateral triangle = ...
a) 3   b) 2   c) 1   d) Zero

(2) The set of numbers which can be lengths of sides of triangle are
a) {5, 3, 8}   b) {4, 6, 12}   c) {2, 6, 3}   d) {3, 5, 5}

(3) In △ ABC, m (∠ C) = 65° , m (∠ A) = 75° then ....
a) AB > BC   b) AB < AC   c) BC > AB   d) AB = AC

(4) If XA = XB and YA = YB, then $\overleftrightarrow{XY}$ .... $\overline{AB}$
a) //   b) ⊥   c) ≡   d) =

(5) In △ ABC, if m(∠B) = 90° , D is midpoint of $\overline{AC}$, then AC=.........
a) 2 BD   b) 4 BD   c) $\frac{1}{2}$ BD   d) $\frac{1}{3}$ AD

(6) The measures of exterior angle of equilateral triangle = ...^{o}
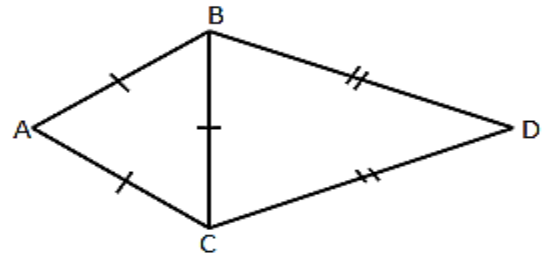a) 60   b) 120   c) 180   d) 360

Q2 *Complete each of the following:*

1) The longest side in the right angled triangle is ....

2) The point of intersection of the medians of the triangle divides each median in the ratio 4 : .... from the b ￼

3) In opposite figure X+Y+Z= ....^{o}

4) △ ABC is an isosceles triangle, m (∠B) = **100°** then m (∠B)=......^{o}

5) In △ ABC if AB= 3 cm , BC= 4 cm , AC= X cm then X ∈]....., ...[
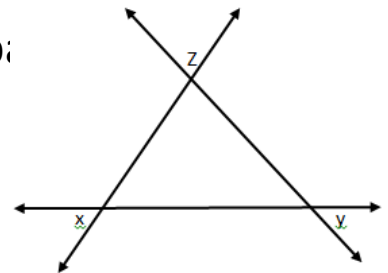
Q3 **[A] In the opposite figure**

AB = AC = BC , BD = DC

, m (∠ABD) = 130°,
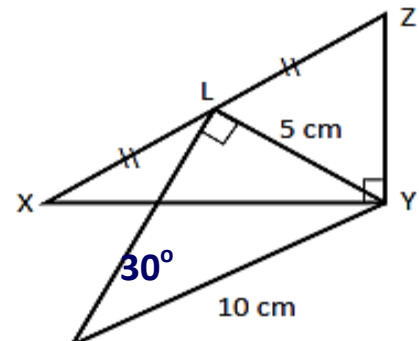
       Find m (∠D)

_____

[B] In the opposite figure

   D is midpoint of $\overline{AB}$, E is midpoint of $\overline{AC}$

   BM = 4 cm , MC = 6 cm , BC = 8 cm

   Find the perimeter of △ DME
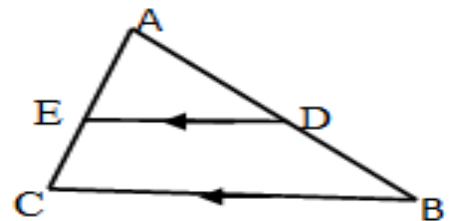
_____
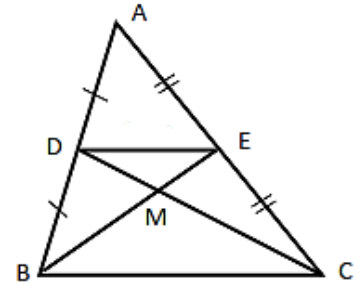
Q4   **[A] In the opposite figure**

   m (∠XYZ) = m (∠HLY) = 90°

, m(∠H) = 30° , LY = 5 cm, HY = 10 cm

   L is midpoint of $\overline{XZ}$

   Find the length of $\overline{XZ}$

_____

[B] In the opposite figure

   AB > AC , $\overline{ED}$ // $\overline{BC}$

   Prove that: AD > AE

_____

Q5 **[A] In the opposite figure**

   In △ ABC, m(∠B) = m (∠C)

   AB = 2 X − 1 , AC = X + 3, BC = 9 − X

   Find the numerical value of perimeter of △ ABC

_____
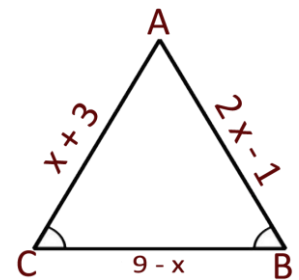
[B] In the opposite figure

   AB = AD, $\overline{AE}$ bisects ∠ BAC

, m(∠ABC) =90° , **Prove that** CE > EB

           ♦♦♦ _____
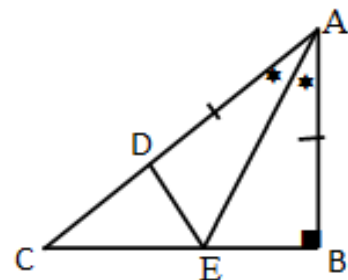
Ɛnd of the questions

GEOMETRY — MODEL NO 7

Q1 *Choose the correct answer:*

(1) If $\triangle$ ABC is right angled triangle at B, AC = 10 cm, BC = 8 cm, then the length of the median drawn from B = ……………… cm

a) 5   b) 6   c) 8   d) 10

(2) The point of intersection of the medians of triangle divides each of them with the ratio of …………………………from the base

a) 1 : 2   b) 2 : 1   c) 1 : 3   d) 3 : 1

(3) ABCD is a rhombus in which AC > BD, then m($\angle$D) …. m($\angle$C)

a) >   b) <   c) =   d) $\leq$

(4) If the length of two sides of an isosceles triangle are 3 , 7 cm. then the length of the third side = ………………………… cm

a) 3   b) 4   c) 7   d) 10

(5) In $\triangle$ ABC, m ($\angle$B) = 70°, m ($\angle$C) = 50°, then BC ………..AC

a) >   b) =   c) <   d) $\leq$

(6) $\overline{AD}$ is median in $\triangle$ ABC, m is intersection point of its medians, AD = 6 cm, then AM = ………… cm

a) 1   b) 2   c) 3   d) 4

Q2 *Complete each of the following:*

1) ABC, BC = AC, m ($\angle$A) = 2 m ($\angle$ C), then m ($\angle$ B) = ………..

2) An isosceles triangle with vertex angle = 60°, its perimeter $3\sqrt{5}$ cm, then its side length …………..

3) The vertex angel bisector in the isosceles triangle bisect the base and……………………………

4) In a triangle, If its side lengths is 2 , 4, X + 1 then X$\in$] ……, ….[

5) The length of two sides in the triangle are not equal, then the greater side in length is opposite to ………………………

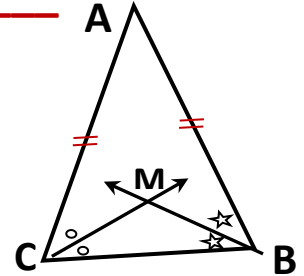**《Q3》 A) In the opposite figure:**

M is the intersection of the medians of △ ABC
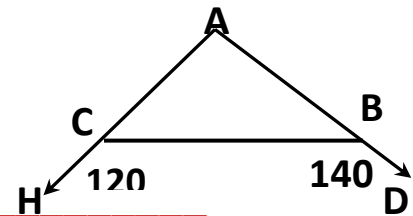XY = 5 cm, CX= 12 cm, MY = 3 cm.
Find with prove the perimeter of △ MAC
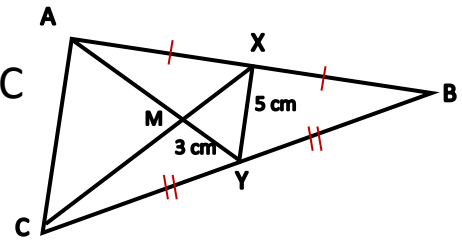
B) In the opposite figure:

△ ABC, AB = AC, $\overrightarrow{BM}$ bisect (∠ B),
$\overrightarrow{CM}$ bisect (∠C), without using the congruency
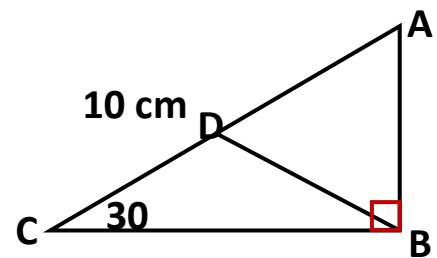**Prove that:** $\overleftrightarrow{AM}$ is the axis of symmetry of $\overline{BC}$

《Q4》 A) In the opposite figure:

△ ABC, D ∈$\overrightarrow{AB}$, H ∈$\overrightarrow{AC}$, m(∠CBD) = 140°
m(∠BCH) = 120°. **Prove that BC > AB**

B) In the opposite figure:

△ ABC right angled triangle at B
D is midpoint of $\overline{AC}$, AC = 10 cm,
m(∠C) = 30°.
Calculate the perimeter of △ ADB

《Q5》 A) In the opposite figure:

△ ABC , $\overrightarrow{CD}$ bisect (∠C) and intersect $\overline{AB}$ in D
Prove that: BC > BD
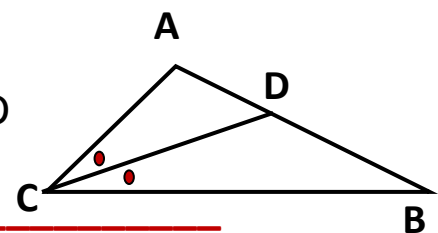
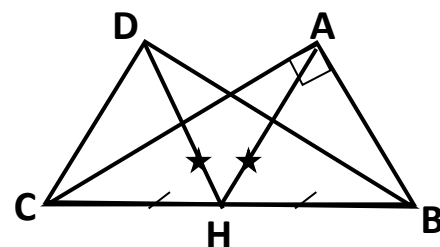**B) In the opposite figure:**

△ ABC right angled triangle at A
H is midpoint of $\overline{BC}$, AH = DH
Prove that: m(∠BDC) = 90°

End of the questions

GEOMETRY — MODEL NO 8

Q1 *Choose the correct answer:*

(1) The triangle which has three axes of symmetry is ………..
a) scalene   **b)** isosceles   c) Right angled   **d)** equilateral

(2) If the lengths of two sides in an isosceles triangle are **8** cm and **4** cm then the length of the third side is …………… cm
a) 4   **b)** 8   **c)** 3   **d)** 12

(3) In $\triangle$ XYZ , m ($\angle$ Z) = 70° , m ($\angle$ Y) = 60° then YZ ……..XY
a) >   **b)** <   **c)** =   **d)** Twice

(4) If XA = XB and YA = YB, then $\overleftrightarrow{XY}$ ……….. $\overline{AB}$
a) **//**   **b)** $\perp$ **c)** $\equiv$ **d)** =

(5) If M is the point of intersection of medians of $\triangle$ ABC, D is midpoint of $\overline{BC}$, then AD =
a) 2 AM   **b)** 4 MD   **c)** $\frac{2}{3}$ MD   **d)** $\frac{3}{2}$ AM

(6) The measures of exterior angle of equilateral triangle = …….^{o}
a) **60**   **b)** **120**   **c)** **180**   **d)** **360**

Q2 *Complete each of the following:*

1) In $\triangle$ ABC, if AB = AC , m($\angle$A) = **70°** , then AB < ………………..

2) In $\triangle$ ABC, if m ($\angle$A) = **30°** and m ($\angle$B) = **90°**, then BC = ……… AC

3) In opposite figure:
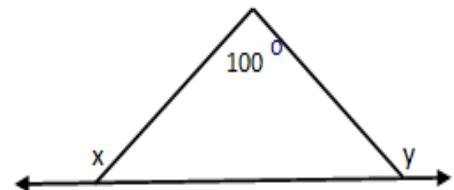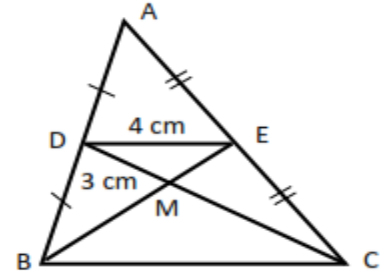
X + y =…………….. ^{o}

4) If the measure of the vertex angle of an isosceles triangle is **80°**, then the measure of each of two base angles =……..

5) The longest side in the right angled triangle is………..
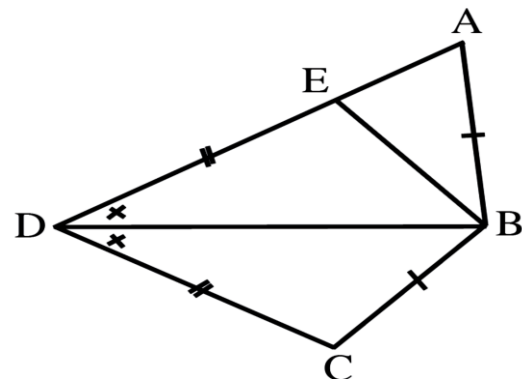
Q3 [A] In the opposite figure

AD = DC , AB = BC

, m (∠B) = 80° , m (∠BAD) = 114°

Find m (∠D)

_____
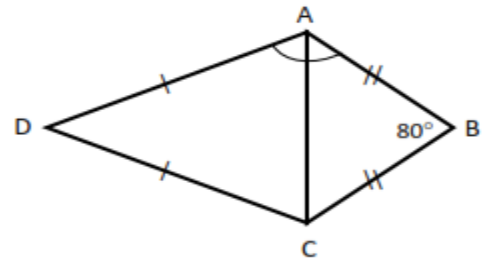
[B]   In the opposite figure

D is midpoint of $\overline{AB}$, E is midpoint of $\overline{AC}$

DE = 4 cm , DM = 3 cm , BE = 6 cm

Find the perimeter of Δ BMC

_____

Q4 [A] In the opposite figure

In the opposite figure

BA = BC and DE = DC ,

$\overline{DB}$ bisects ∠ ADC

Prove that:

(∠A) + m(∠C) = 180°

_____

[B] In the opposite figure

BF > FA , $\overline{ED}$ // $\overline{FB}$, $\overline{FA}$ // $\overline{EC}$

Prove that: ED > EC

_____
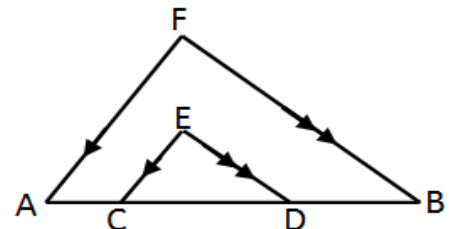
Q5 [A] In the opposite figure

AD = DC   Prove that   BC > AB

_____
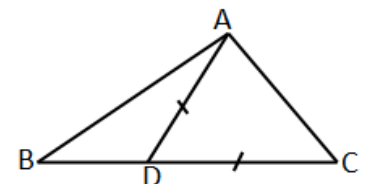
[B] In the opposite figure

$\overline{AD}$ // $\overline{BC}$, $\overline{BD}$ bisects ∠ ABC

$\overline{AE}$ bisects ∠ BAD

Prove that: $\overline{AE} \perp \overline{BD}$

⬧◆⬧
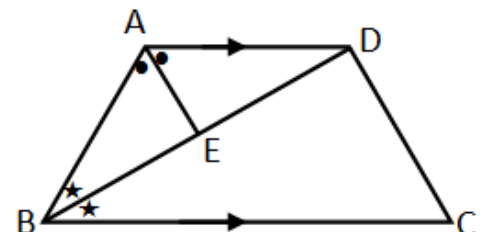
End of the questions

GEOMETRY — MODEL NO 9

Q1 Choose the correct answer:

(1) In △ ABC , m(∠A) = 3 m(∠B) , then AC.............. BC

a) =   b) ≡   c) >   d) <

(2) The numbers 5 , 4 ,…… can be lengths of sides of a triangle

a) 8   b) 9   c) 10   d) 12

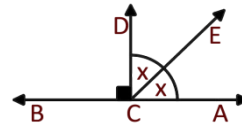**(3)** If △ ABC is right angled at **B**, then……

a) AC < AB   b) AC > BC   c) AB < AC   d) BC > AC

(4) If A > B, C > D, then A + C ……….. B + D

a) >   b) =   c) <   d) ≤

(5) **In the opposite figure:**
Value of X = …………°

a) 30   b) 45   c) 60   d) 90

(6) **In the opposite figure:**
Value of Y = …………°

a) 30   b) 40   c) 60   d) 70
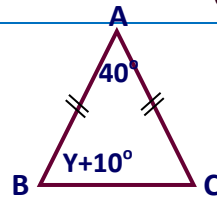
Q2 Complete each of the following:

1) The point of intersection of the medians of the triangle divides each of them in the ratio of ………. From the base

2) The base angles of the isosceles triangle are …………

3) The longest side in the right angled triangle is …………….

4) In △ ABC, m (∠A) = 60°, AB = BC, then the number of axes of symmetry of △ ABC =...

5) The measure of exterior angle of the equilateral triangle is ……. °

Q3 **[A] In the opposite figure:**
BC = 10 cm , MB = 5 cm
MC = 6 cm
Find the perimeter of △ EMD

_____

[B]   In the opposite figure:

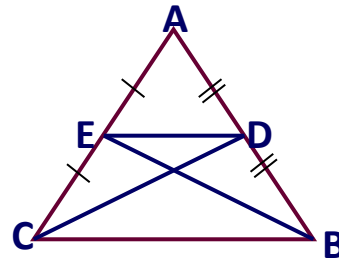AB = AC , △ BDC is equilateral , m (∠ A) = 30 ^{o}

Find by proof: m (∠ ACD)

30°

==
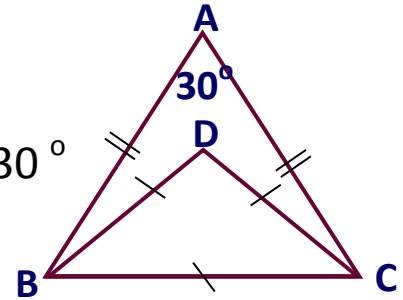
Q4 **[A] In the opposite figure:**
Prove that:
AC = BD
_____
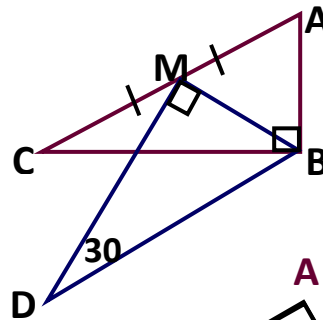
[B] In the opposite figure

AC > AB , m (∠ A) = 90 ^{o}

Prove that: m (∠AXY) **>** 45°

30

==
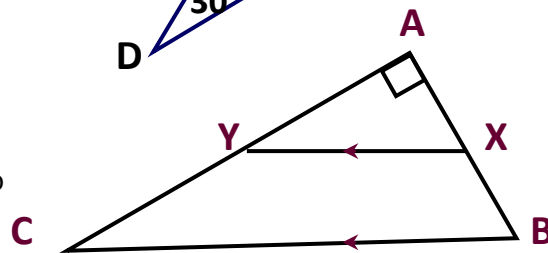
Q5 **[A] In the opposite figure:**
$\overline{DC}$ bisect ∠ ACB
Prove that: BC > BD
_____
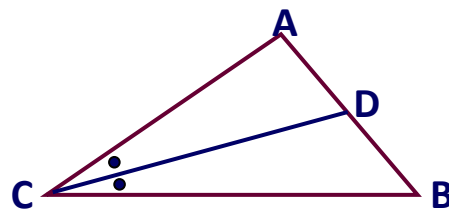
[B] In the opposite figure
Prove that:
Perimeter of △ ABC **>** 2 AD

◆◆◆
End of the questions
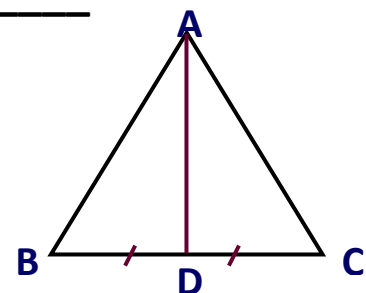
GEOMETRY — MODEL No 10

Q1 *Choose the correct answer:*

(1) The point of intersection of the medians of triangle divides each median in the ratio …………… from vertex.

a) 1 : 2   b) 3 : 2   c) 2 : 3   d) 4 : 2

(2) In $\triangle$ ABC, if m ($\angle$C) = 80°, m ($\angle$ B) = 30°. then AC ……….. BC

a) =   b) <   c) >   d) $\le$

(3) The axis of symmetry of a line segment is straight line ………..

a) Perpendicular to it   c) Parallel to it

b) Bisects it   d) Perpendicular at midpoint

(4) In any triangle, XY + YZ – XZ …………. zero

a) >   b) <   c) =   d) $\le$

**(5)** An isosceles triangle in which the lengths of two of its sides are **4** cm and **9** cm then the length of the third side equals …………

a) 4   b) 5   c) 9   d) 13

(6) If AB $\cap$ CD = $\varnothing$, then AB , CD are ……..

a) Coincides   b) Perpendicular   c) Intersecting   d) Parallel

Q2 *Complete each of the following:*

1) If measure of an angle of an isosceles is **60°**, then the triangle..…

2) The bisector of vertex in an isosceles triangle ……………… , ………..

3) In $\triangle$ XYZ, if m ($\angle$X) = 50°, m($\angle$Y) =60°, then the triangle has …….
Axes of symmetry

4) In isosceles triangle, if the measure of one of its base angles is 40°, then the measure of its vertex ………..^{o}

5) **In the opposite figure:**
    $\triangle$ ABC $\equiv$ $\triangle$ ACD, m ($\angle$CAD) = ………
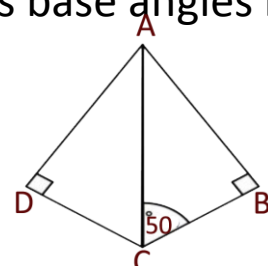
‹Q3› **A) In the opposite figure:**

D , E are midpoints of $\overline{AB}$, $\overline{AC}$ respectively

$\overline{BE} \cap \overline{CD}$ = {m}. if DE = 4 cm, DM = 3 cm

BE = 6cm. Find perimeter of △ BMC

_____
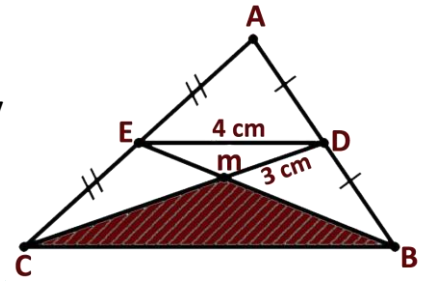
B) In the opposite figure:

M (∠ B) = 90°, m (∠ACB) = 60°

$\overline{DE}$ is median in △ DAC, BC = DE

Prove that: m (∠ ADC) = 90°

_____
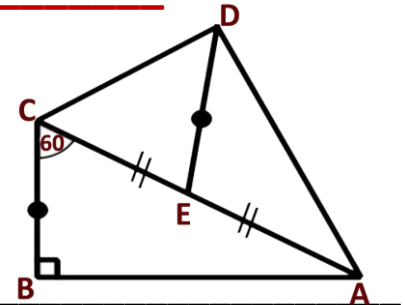
‹Q4› **A) In the opposite figure:**

$\overline{AD}$ // $\overline{BC}$, m (∠BAC) = 80°,

m (∠DAC) = 30°

Prove that: BC > AC

_____
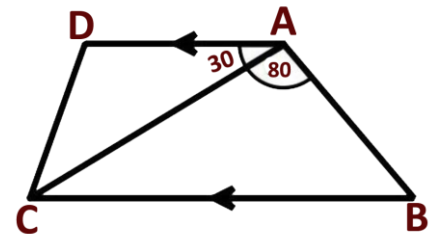
B) In the opposite figure:

Arrange ascending the measures of △ ABC where: AC = 12 cm,

BC = 13 cm, perimeter of △ ABC = 30 cm

_____

‹Q5› **A) In the opposite figure:**

△ ABC, $\overline{DE}$ // $\overline{BC}$, AD = AE

Prove that:

① AB = AC   ② DB = EC

_____
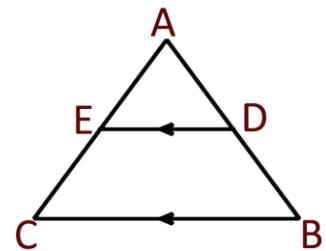
B) In the opposite figure:

△ ABC, AC > AB

$\overrightarrow{BM}$ bisects (∠ ABC), $\overrightarrow{CM}$ bisects (∠ACB)

Prove that: MC < MB

————— ◆ ◆ ◆ —————
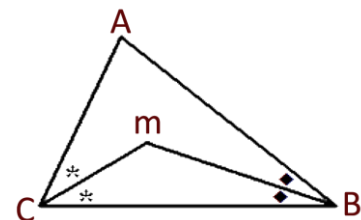
End of the questions

Geometry Examinations of Governorates 2012

Answer the following questions:

❶ Choose the correct answer:

1) The number of axes of summetry in the equilateral traingle = ...

    a) 1   b) 2   c) 3   d) nothing

2) In a trinagle ABC: If AC = BC and m ($\angle$ C) = 80˚, then m ($\angle$ A) = ...

    a) 80˚   b) 50˚   c) 100˚   d) 40˚

3) Δ XYZ, m ($\angle$ X) = 60˚, m ($\angle$ Y) = 40˚, then XZ ....ZY

    a) <   b) >   c) =   d) nothing

4) If $\overline{XE}$ is a median in Δ XYZ, M is the point of interesction of its medians, then EM = ... XE

    a) $\frac{1}{2}$ b) 2   c) $\frac{1}{3}$ d) $\frac{2}{3}$

5) Δ ABC if m ($\angle$ A) = 30˚ and m ($\angle$ B) = 90˚, then AC = ...

    a) $\frac{1}{2}$ BC   b) 2 BC   c) 2 AB   d) BC

❷ Complete the following:

1) The two base angles in an isosceles triangle are ....

2) The bisector of the vertex angle of an isosceles triangle .... the base and is .... to it.

3) The sum of the lengths of any two sides in a triangle is .... the length of the third side.

4) If ABC is a right-angled triangle at B, AB = 6 cm, BC = 8 cm, if $\overline{BD}$ is a median of triangle ABC, then BD = ... cm.

5) In triangle ABC, if BC > AB, then m ($\angle$ A) .... m ($\angle$ C)

❸ In the opposite figure:
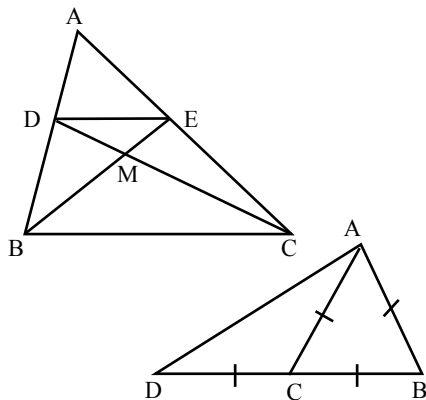
$\overline{BE}$, $\overline{CD}$, are medians in Δ ABC,

MB = 6 cm., MC = 8 cm.,

BC = 12 cm.,

Find: The perimeter of Δ MDE

❹ (a) In the opposite figure:

    AB = BC = AC = DC

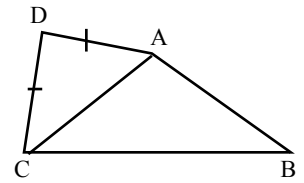   **Prove that:** m ($\angle$ BAD) = 90˚

(b) In the opposite figure:

ABCD is a quadrilateral in which: AD = DC,

BC > AB

Prove that: m (∠ BAD) > m (∠ BAD)

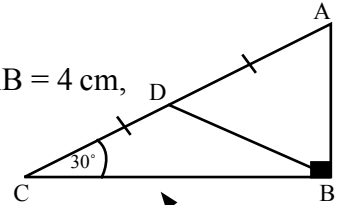**5** **(a) In the opposite figure:**

m (∠ B) = 90˚, m (∠ C) = 30˚, $\overline{BD}$ is a median, AB = 4 cm,

Complete:

AC = ...cm, BD = ...cm, AD = ...cm.

(b) In the opposite figure:

E ∈ $\overrightarrow{BA}$, $\overrightarrow{AD}$ // $\overline{BC}$,

m (∠ DAE) = 70˚,

m (∠ DAC) = 40˚,

Prove that: AC > AB
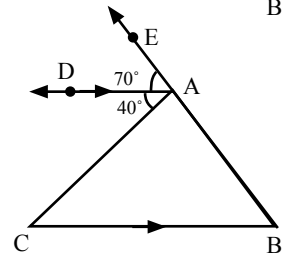
Cairo	2	El-Nozha Educational Zone - El-Sayeda Khadiga Language School

Answer the following questions:

❶ Choose the correct answer:

1) In ∆ ABC: m (∠ B) = 80˚, m (∠ C) = 50˚, then BC .... AB

   a) >　　　　　　b) <　　　　　　　　c) =　　　　　　　d) ≡

2) The lenghts 6 cm, 7cm and …....…… can be lengths of the sides of a triangle.

   a) 15 cm　　　　b) 13 cm　　　　　c) 18 cm　　　　　d) 11 cm

3) In ABC if m (∠ A) = 30˚ and m (∠ B) = 90˚ then AC = ...

   a) $\frac{1}{2}$ BC　　　b) 2 BC　　　　　c) 2 AB　　　　　d) BC

4) The point of intersection of the medians of the triangle divides each of them with ratio .... from the vertex.

   a) 1 : 2　　　　　b) 3 : 1　　　　　c) 1 : 3　　　　　d) 2 : 1

5) In ∆ ABC, m (∠ A) = 50˚ and m (∠ B) = 100˚ then

   a) AB > AC　　b) AC > AB　　c) BC > AC　　d) AB = BC

❷ Complete:

1) The measure of exterior angle of the equilateral ∆ = ... ˚

2) If ∆ ABC = ∆ XYZ, then AC ≡ ....

3) The longest side in a right-angled triangle is ....

4) The perpendicular bisector of a line segment is called ....

5) The bisector of the vertex angle of an isosceles triangle is ....

❸ **(a) In the opposite Fig.:** m (∠B) = m (∠D) = 90°

m (∠ACB) = 30° and $\overline{DE}$, is a median of ADC.

If AB = 3 cm, find with proof the length to $\overline{DE}$.
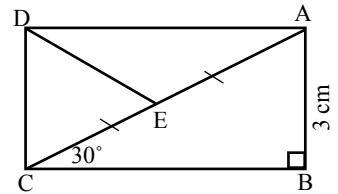
(b) in the opposite Fig.:

ABCD is a paralledogram, CA = CB

and m (∠ACB) = 50°.

Find with proof m (∠ D)
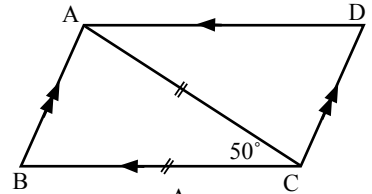
❹ **(a) In the opposite Fig.: E and D are the midpoints**

of $\overline{AC}$, and $\overline{CB}$. If AD = 4.5 cm and BM = 4 cm

Find the length of $\overline{MD}$ and $\overline{BE}$

(b) In the opposite Fig. ABCD is a quadrilateral

in which AD > AB and BC = CD

Prove that: m (∠ABC) > m (∠ADC).

❺ **In the opposite Fig.**

$\overline{AC}$ > $\overline{AB}$, $\overline{DE}$ // $\overline{BC}$
Prove that AE > AD

3) The length of the side opposite the angle of measure 30˚ in the right-angled equals ....

4) The perpendicular bisector of a line sement is called ....

5) In the parallelogram, each two opposite sieds are ....

❸ a) In the opposit figure:

$\overline{BE}$, and $\overline{CD}$ are two medians
in △ ABC, MB = 6 cm, MC = 8 cm
and CB = 12 cm.
Find the perimeter of △ EMD
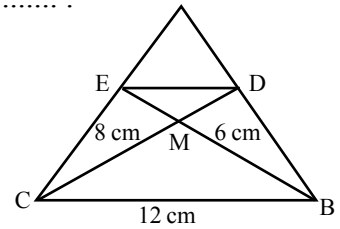
(b) In the opposite Figure:

CD = CA = AB, ∈ C BD
and m ($\angle$ ACD) = 130˚
Find by proof m ($\angle$ BAD)

❹ In the opposit figure:

ABCD is a quadrilateral in which AB = 4 cm, BC = 5 cm,
CD = 8 cm and AD = 7 cm
Prove that: m ($\angle$ BAD) > m ($\angle$ BCD)
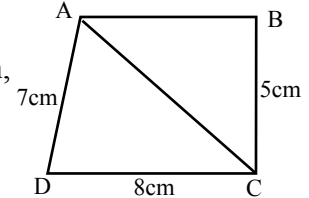
❺ In the opposite figure:

m ($\angle$ ABC) = m ($\angle$ ADC) = 90˚
m ($\angle$ ACB) = 30˚ and
$\overline{DE}$ is a median of △ ADC
if AB = 3cm,
Find the lenght of $\overline{DE}$
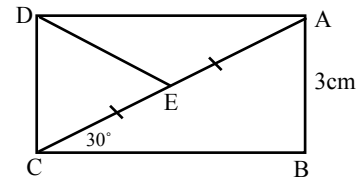
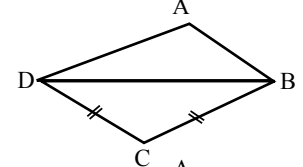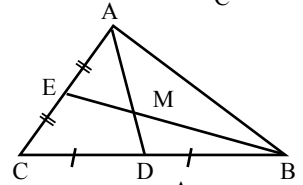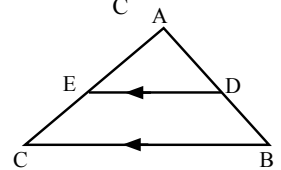| Cairo	**4**	Abdeen Educational Zone - Mohamed Fared E.L.S

❶ Complete each of the following:

a) The longest side in the right-angled triangle is ....

b) If the lenghts of two sides in the isosceles triangle are 3 cm and 8 cm, then the length of the the third side = ... cm.

c) The length of the side opposite to the angle whose measure = 30 in the right-angled triangle equals ....

d) in △ XYZ: if m ($\angle$ X) > m ($\angle$ Y) > m ($\angle$ Z) then .... > XZ > ....

e) The point of intersection of the medians of a triangle divides each median by the ratio .... from the base.

❷ Choose the correct answer:

1) The number of the axes of symmetry of the equilateral triangle is ....

a) 1   b) 2   c) 3   d) zero

2) In △ ABC: If m ($\angle$ A) = 75˚ , m ($\angle$ C) = 50˚, then AC .... AB

a) >   b) =   c) ⩽   d) <

3) The sum of lenghts of any two sides in the triangle .... the length of the third side.

a) $>$ b) $\geqslant$ c) $\leqslant$ d) $<$

4) $\overline{AD}$ is a median of $\triangle$ ABC where M is the point of inter section of its median, then AM = ... AD

a) $\dfrac{1}{3}$ b) $\dfrac{2}{3}$ c) $\dfrac{1}{2}$ d) 2

5) If $\overline{AD}$ is a median of $\triangle$ A B C, then ....

a) A B = B C   b) B D = D C   c) A D + B C   d) A B = A C

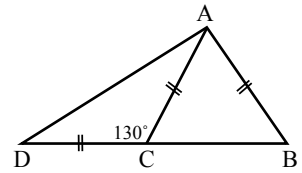**3** **a) In the opposite figure:**

$\overline{BE}$ and $\overline{CD}$ are two medians in $\triangle$ A B C,

M E = 2 cm, M D = 4 cm and D E = 5 cm

Find: the perimeter of $\triangle$ M B C
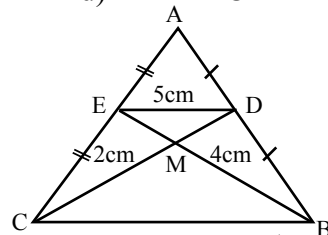
(b) In the opposite figure:

A B C is a right-angled triangle at B,

D is the midpoint of $\overline{AC}$, m ($\angle$ C) = 30° and AB = 6cm

Find the length of $\overline{AC}$ and $\overline{BD}$
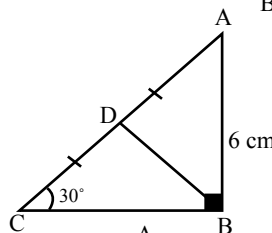
4 **a) In the opposite figure:**

AB = AD,

BC = CD

Prove that $\angle$ A B C $\equiv$ $\angle$ A D C
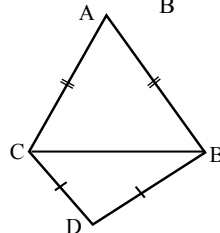
(b) in the opposite figure:

$\overline{AD}$ // $\overline{BC}$, ($\angle$ BAC) = 70°

and m ($\angle$ DAC) = 35°

prove that: AC > BC
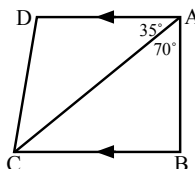
5 **a) In the opposite figure:**

ABC is a triagle in which

AC > AB, $\overline{DE}$ // $\overline{BC}$

prove that: AE > AD
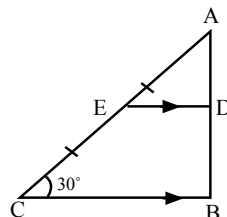
(b) In the opposite figure:

$\triangle$ ABC is a right-angled triangle at B,

$\overline{AE}$ and $\overline{BD}$ are medians if AC = 12 cm.

Calculate the length of each $\overline{BD}$ and $\overline{MD}$.
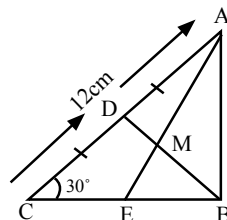
❶ Choose the correct answer:

1) The number of axis of symmetry in the scalene triangle is................ .
   a) 1   b) 2   c) 4   d) zero

2) The lengths 9 cm, 4 cm and .... may be the lenghts of isosceles triangle.
   a) 3 cm   b) 4 cm   c) 5 cm   d) 9 cm

3) In triangle the sum of the lengths of two sides .... the length of the third side.
   a) $>$ b) $<$ c) $=$ d) $\leqslant$

4) $\triangle$ ABC in which m ($\angle$ A) = 40˚ and m ($\angle$ B) = 70˚, then AB............ AC.
   a) $>$ b) $=$ c) $\equiv$ d) $<$

5) The measure of the exterior angle of an equaillateral triangle ....
   a) 30˚   b) 120˚   c) 60˚   d) 90˚

❷ Complete each of the following:

a) The point of intersection of the medins of a triangle divides each median in the ratio .... from the vertex.

2) In the right- angled triangle, the longest side in it is called ....

3) In the right-angled triangle, the opposite side to angle with measure equals 30˚ = ... the length of the hypotenuse.

4) In an isosceles triangle, if any angle has a measure of 60˚, the triangle is ....

5) $\triangle$ ABC in which m ($\angle$ B) = 70˚ and m ($\angle$ C) = 35˚, the longest side in length is ....

❸ (a) In the opposite figure:

ABC is a right-angled triangle at B,

D is the midpoint of $\overline{AC}$, m ($\angle$ A) = 30˚,

BC = 5 cm. Find: the lengh of $\overline{BD}$.
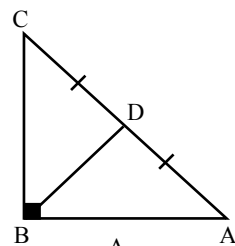
(b) in the opposite Figure:

D $\in \overline{BC}$, E $\in \overline{BC}$, $\overline{AB}$ // $\overline{FD}$

and $\overline{AC}$, $\overline{FE}$, if AB = AC. prove that:

FDE is an isosceles triangle.
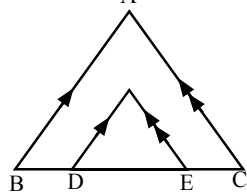
❹ (a) In the opposite figure:

$\triangle$ ABC in which D and E midpoint of $\overline{AC}$, $\overline{BC}$

$\overline{AE} \cap \overline{BD}$ = {M}

AB = 12cm, AE = 9cm, BM = 8cm

Calculate the perimeter of $\triangle$ DME
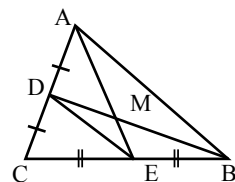
(b) $\triangle$ XYZ in which XY = 8 cm, YZ= 10 cm and ZX = 7cm. Ordere the measures of its angles ascendingly.

5 **In the opposite figure:**

ABC is a triangle in which, BC > AB

D ∈ $\overline{BC}$ such that AD = BD.

Prove that: (∠BAC) is an obtuse angle.
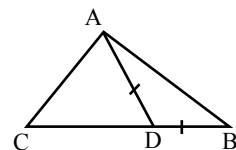
Cairo	**6**	Al Salam Education Zone - Anwer Alsadat EXp. Lang. School

1 **Choose the correct answer:**

1) Number of axes of symmetry of an equilateral triangle is ....
  a) 0   b) 1   c) 2   d) 3

2) An isosceles triangle, one of its base angles has masure 50˚, then the measure of the vertex angle = ...
  a) 50˚   b) 60˚   c) 70˚   d) 80˚

3) $\overline{AD}$ is an median of triangle ABC, and M is the point of intersection of the medians, then AM = ... AD.
  a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{2}$ d) $\frac{1}{4}$

4) If the lenghts of two sides of a triangle are 4 cm and 8 cm., then the length of the third side = ...cm.
  a) 3   b) 4   c) 8   d) 12

5) In a triangle ABC: if m (∠A) = 80˚, m (∠C) = 60˚, then AB ....BC.
  a) >   b) <   c) =   d) ⩾

2 **Complete:**

1) If XYZ is a right-angled triangle at Y, then the longest side is ....

2) The sum of measures of any two consecutive angles in the parallelogram = ...˚

3) The straight line perpendicular to the midpoint of a line semgment is called ....

4) The bisectors of the vertex angle an isoseles triangle .... and ....

5) The measure of the exterior angle of the equilateral triangle = ...˚

3 **a) In the opposite figure:**

ABC is a right-angled triangle at B, m (∠ACB) = 30˚

, AB = 5 cm. Point E bisects $\overline{AC}$ if DE = 5 cm

, then prove that m (∠ADC) = 90˚
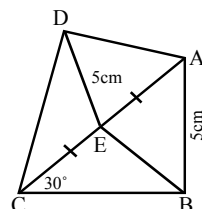
(b) In the opposite figure: ABC is a triangle, X bisects $\overline{AB}$, Y bisects

$\overline{BC}$, XY = 5 cm, $\overline{XC}$ ∩ $\overline{AY}$ = {M} where:

CM = 8 cm, Ym = 3 cm. Find with proof

the lenght of : 1) $\overline{AM}$ 2) $\overline{MX}$ 3) $\overline{AC}$
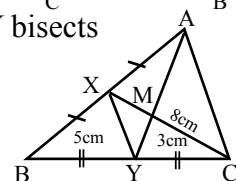
4 **a) In the opposite figure:**

ABC is a triangle in which AC = BC ,

$\overrightarrow{AD}$ // $\overrightarrow{BC}$, m ($\angle$ DAC) = 30° .Find

the measures of the angles in Δ ABC
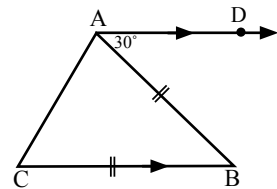
(b) In the opposite figure:

$\overrightarrow{AD}$ // $\overline{BC}$, m ($\angle$ BAC) = 80°, m ($\angle$ DAC) = 30°

Prove thath: BC > AB
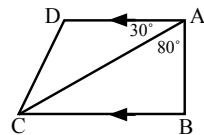
5 **In the opposite figure:**

ABCD is a quadrilateral in which AB = AD = 5cm,

BC = 2 cm, DC = 4 cm Prove that:

m ($\angle$ ABC) > m ($\angle$ ADC)
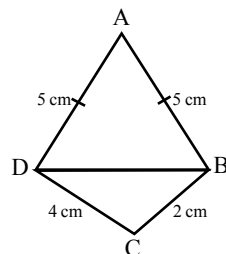
| Cairo | 7 | Ain Shams Administration - Helmiat Al Zaiton - Helmiat Al Zaiton Extinguished Exp. School |

1 **Complete the following:**

1) The longest side length in the right-angled triangle is ....

2) The base angles of the isosceles triangle are ....

3) In a triangle, the smallest angle in measure is opposite to ....

4) The medians of a triangle are ....

5) If the angles of a triangle are congruent, then the triangle is ....

2 **Choose the correct answer:**

1) In Δ ABC: if m ($\angle$ A) = 60°, m ($\angle$ B) = 40°, then the longest side in length is

....   ($\overline{AB}$, $\overline{CA}$, $\overline{BC}$, hypotenuse)

2) In the Δ ABC if XY = YZ, m($\angle$ Z) = 50° then the m($\angle$ X) = ...

(50° , 80° , 130° , 100°)

3) Δ ABC if right-angle triangle at B, if m ($\angle$ A) = 30°, BC = 10 cm, then AC=

....   (5 cm, 10 cm, 20 cm, 15 cm)

4) The measure of exterior angle of an equilateral triangle = ...

(30° , 60° , 120° , 90°)

5) If the lengths of two sides in an isosecles triangle were: 3 cm , 7 cm, then the

length of the third side = ...   (3 cm – 7 cm - 4 cm – 5 cm)

❸ **(a) In the opposite figure:**

ABC is a triangle in which $\overline{BD}$ bisects $\angle$ ABC

and intersects, $\overline{AC}$ at D, $\overrightarrow{DE}$ // $\overline{CB}$

$\overrightarrow{DE}$ // $\overline{AB}$ = {E}

Prove that BE = ED

(b) In the opposite figure:

XYZL is quadrilateral in which

XY = ZL = ZX = XY, m ($\angle$ ZXL) = 90°

find the m ($\angle$ XLZ) , m ($\angle$ LXY)
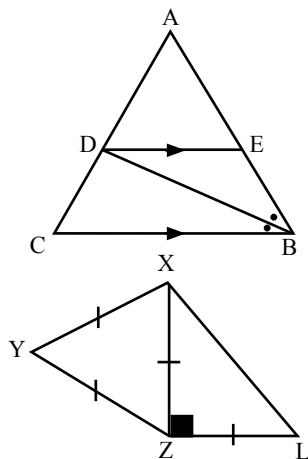
❹ **(a) In the opposite figure:**

$\overline{AD}$ // $\overline{BC}$, m ($\angle$ D) = 90°, m ($\angle$ B) = 60°,

m ($\angle$ DAC) = 45°

First: Prove that. AC $\angle$ BC

Second: Prove that Δ DAC is an isosceles triangle.
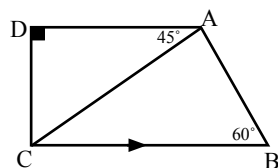
❺ **(a) In the opposite figure:**

AB = AC, DC > DB

Prove that: m ($\angle$ ABD) > m ($\angle$ ACD)

(b) In the opposite figure:

$\overline{DE}$ // $\overline{BC}$, AD = AE

Prove that: AB = AC.
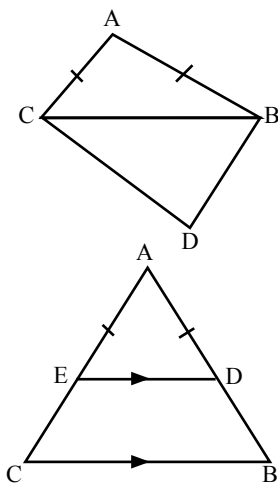
Giza	8	Giza Governorate - Omrania zone - El-Sadat E.L.S

❶ **Choose the correct answer from those between parentheses:**

1) If $\overline{AD}$ is a median of Δ ABC and M is the point of intersection of the medians

then AM = ... AD. $(\dfrac{1}{3} , \dfrac{2}{3} , \dfrac{1}{2} , \dfrac{1}{4})$

2) If Δ ABC , m (A) = 80° , m(C°) = 70° then AB ....BC.

$(> , < , = , \geqslant)$

3) If the lengths of two sides of triangle are 3,7 then the length of 3rd side is ....

$(3 , 4 , 8 , 10)$

4) Δ ABC , m (∠A) = 30° m (∠B) = 90° then AC = ...

$$\left(\frac{1}{2}\,BC\ ,\ 2\,BC\ ,\ 2\,AB\ ,\ BC\right)$$

5) In the isosceles triangle if one of its base angle of measure 40° then its vertx angle is of ....   (40°,80°,100°,60°)

2 **Complete the following:**

1) The measure of the exterior angle of the equilateral triangle is ....°

2) The longest side in the right angled triangle is ....

3) The number of symmetrical axis in the equilateral triangle is ....

4) The bisector of the vertex angle of an isosceles triangle bisects the base and is ....

5) The medians of triangle are ....

3 **In the opposite figure:**

D midpoint of $\overline{BE}$, H is a midpoint

of $\overline{AB}$, $\overline{AD}$ ∩ $\overline{CH}$ = {M}   AD = 9 cm

AC = 12 cm, CM = 10 cm, find perimeter of Δ MDH
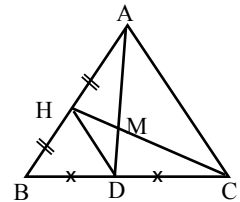
4 **(a) In the opposite figure:**

ABCD is quadrilateral   AB = 4 cm

BC = 5 cm   CD = 8 cm   AD = 7 cm

Prove that: m (∠BAD) > m (∠BCD).
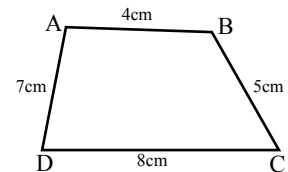
(b) m (∠B) = 90° m (∠ACB) = 30°.

AB = DH , H is midpoint of $\overline{AC}$

Prove that m (∠ADC) = 90°.
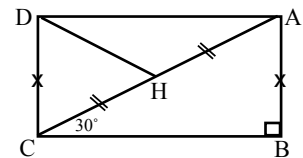
5 **(a) In the opposite figure:**

$\overline{ED}$ // $\overline{BC}$ and $\overline{BE}$ bisects ∠ABC

Prove that: Δ DBE is an isosceles Δ

(b) In the opposite figure:

AC = AD, m (∠DAB) = 30° m (∠B) = 50°

Find m (∠DAC)
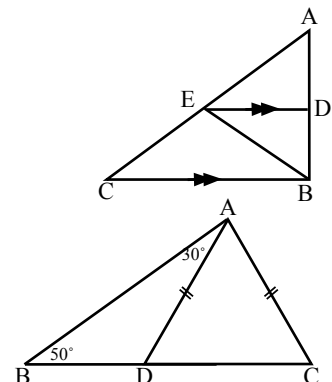
1 **Choose the correct answer from the given ones:**

1) The area of rhombus whose diagonls lengths 6 cm, 8cm = ... cm²

   a) 48   b) 24   c) 14   d) 12

2) In $\triangle$ ABC, if $(AC)^2 = (AB)^2 + (BC)^2$, then $\angle$ B is .... angle.

   a) right   b) obtuse   c) acute   d) straight

3) 1) The number of axes of summetry in the equilateral traingle = ...

   a) 1   b) 2   c) 3   d) nothing

4) If the area of a parallelogrm is 35 cm² and its height is 5 cm, then the length of the corresponding base is ....cm.

   a) 5   b) 7   c) 9   d) 20

5) A square with perimeter 16 cm/ then its area = ...cm²

   a) 32   b) 40   c) 16   d) 20

2 **Complete each of the following:**

1) The median of a triangle divides its surface into two triangles are ....

2) The two triangles are similar if the correspoding .... are proportional.

3) If the lenghts of two parallel bases in a trapezium are 8 cm and 10 cm and its height is 6 cm then its area = ...cm²

4) In the opposite figure:

   $\triangle$ ABC is right - angled at A and $\overline{AD} \perp \overline{BC}$ then

   $(AB)^2 = $ .... $\times$ ....
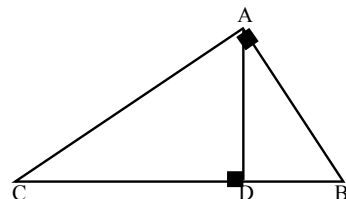
5) Two triangles which have the same base and the vertices opposite this base on a straight line parallel to the base ....

3 **(a) In the opposite figure:**
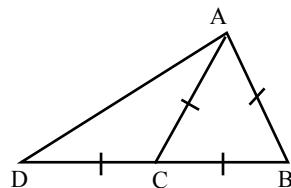
   AB = BC = AC = DC

   Prove that: m ($\angle$ BAD) = 90˚

(b) In the opposite figure:

   ABCD is a quadrilateral in which: AD = DC, BC > AB

   Prove that: m ($\angle$ BAD) > m ($\angle$ BAD)
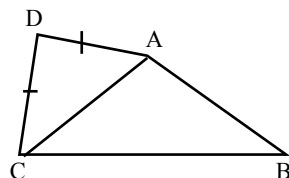
4 **(a) In the opposite figure:**

   F $\in \overrightarrow{DA}$ if the area of the parallelogram

   ABCD = 40 cm ²

   Find area of $\triangle$ FBC
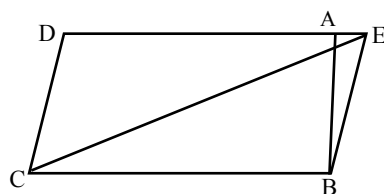
(b) In the opposite figure:

$\overline{AD}$ // $\overline{BC}$, $\overline{AC}$ ∩ $\overline{DB}$ = {M}
Prove that
The area of △ AMB = the area of △ DMC
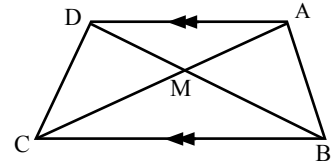
5 **In the opposite figure:**

m (∠B) = 90˚ , AB = 9cm
BC = 12 cm, CD = 17 cm
And AD = 8 cm

1) **Find the length** of $\overline{AC}$
2) **Prove that:** m (∠DAC) = 90˚
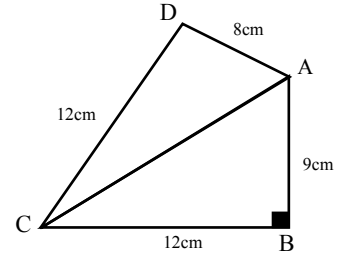
Giza	10	Dokki Directorate - Gamal Abd El-Nasser Exp.L.S.

1 **Choose the correct answer from the given ones:**

1) The number of medians of an obtuse angled triangle is ....

   a) zero   b) 1   c) 2   d) 3

2) In a parallelogram ABCD if m (∠A) = 70˚, then m (∠B)= ....

   a) 70˚   b) 90˚   c) 110˚   d) 20˚

3) △ ABC: if m (∠A) = 30˚, m (∠B) = 90˚, then BC = ...

   a) $\frac{1}{2}$ AB   b) $\frac{1}{2}$ AC   c) 2AB   d) 2AC

4) Each of the base angles of the isosceles triangle is .... angle.

   a) acute   b) right   c) obtuse   d) striaght

5) △ ABC : m (∠B) = 70˚, m (∠C) = 30˚ then

   a) BC > AB   b) AB > BC   c) AC > BC   d) AB > AC

2 **Complete:**

1) The perpendicular to a line segment from its mid-point is called .... for that line segment.

2) The median of an isosceles triangle drawn from the vertex bisects ....

3) △ ABC, if AB = 5 cm and BC = 7 cm, then AC ∈]........,........[

4) The longest side in the right angled triangle is ....

5) △ ABC: m (∠B) = 40˚ , m (∠C) = 80˚ then the number of axes of symmetry of △ ABC = ...

3 **A- In the opposite figure:**

△ ABC, in which m (∠B) = m (∠C)

Find: The perimeter of △ ABC.
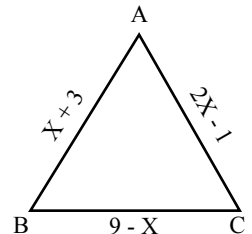
B- In the opposite figure:

M ($\angle$ DBC) = 120°

, m ($\angle$ ECB) = 140°

Prove that CB > AB
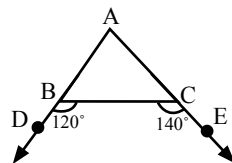
4 **In the opposite figure:**

AB = AC, $\overline{BE}$ // $\overline{AB}$

, $\overline{DF}$ // $\overline{AC}$

Prove that DE = DF
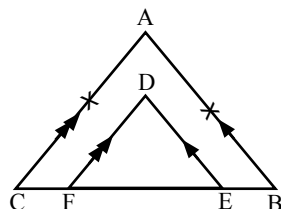
5 **A- In the opposite figure:**

$\triangle$ ABC in which: m ($\angle$ B) = 90°

, m ($\angle$ C) = 30°, D is the mid-point of $\overline{AC}$

, AC = 10cm. **Find** the perimeter of $\triangle$ ABD

Prove that m ($\angle$ B) > m ($\angle$ C)
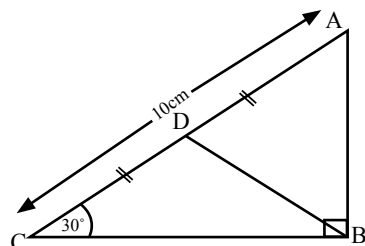
B- In the opposite figure:

Perimeter of $\angle$ ADC > perimeter of ADB

, BD = DC

Prove that m ($\angle$ B) > m ($\angle$ C)
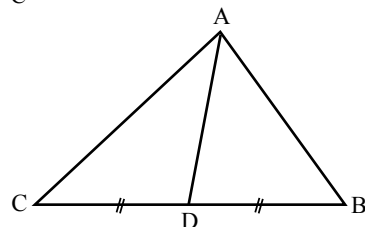
1 **Complete the following:**

a)The vertex angle bisector in the isosceles triangle ....

b) $\overline{AD}$ is a median of $\triangle$ ABC , M is the point of concurrence, then AM:AD = ... : ......

c) Any point on the axis of symmetry of a line segment is at two equal distances from...............

d) In any triangle: The sum of the lengths of any two sides is .... the length of the third side.

e) ABCD is a parallelogram, m ($\angle$ A) = (3x + 4)°, m ($\angle$ B) = 5x°, then m ($\angle$ C) = ...°

2 **Choose the correct answer from the given ones:**

a) ABC is a triangle in which: AB = 3cm, BC = 5cm, then AC $\in$ ....

(]2 , 8[, [2 , 8] ,]9 , 25[, [2 , 15])

b) Triangle ABC in which AB> AC, then m ($\angle$B) .... m ($\angle$C)   [> , < , ⩾ , =]

c) An isosceles triangle the lengths of two sides: 4 cm and 8 cm, then the length of the third side is ....cm.   (3 , 4 , 13 , 8)

d) Δ ABC, AB = AC, m ($\angle$B) = $(2x + 13)°$, m ($\angle$C) = $(3x - 17)°$, then m ($\angle$A) = ...°   (34°,43°,73°,30°)

e) Δ ABC : if m ($\angle$A) = 30°, m ($\angle$B) = 90°, then BC = ...
$$(\frac{1}{2} AB , \frac{1}{2} AC , 2AB , 2AC)$$

❸ A- In the opposite figure $\overrightarrow{DA}$ // $\overline{BC}$, AC = BC , m ($\angle$DAC) = 50°
Find: m ($\angle$ABC).
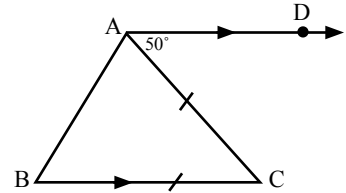
B- ABCD is a quadrilateral in which, AB = 6 cm. BC = 4 cm, CD = 8 cm, DA = 7cm

Prove that: m ($\angle$ABC) > m ($\angle$ADC).

❹ In the opposite figure E, F are the midpoints of $\overline{AB}$, $\overline{AC}$

in Δ ABC, $\overline{AD} \perp \overline{BC}$, AB = 10 cm, BC = 8cm , AC = 7cm.

Find: the perimeter of triangle DEF
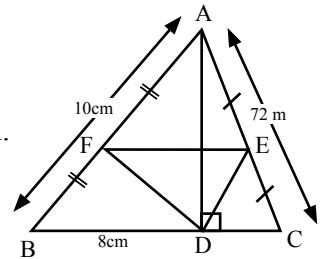
❺ a) In the opposite figure $\overline{AB} \cap \overline{CD} = \{M\}$, $\overline{AC} \perp \overline{CD}$, $\overline{BD} \perp \overline{CD}$,
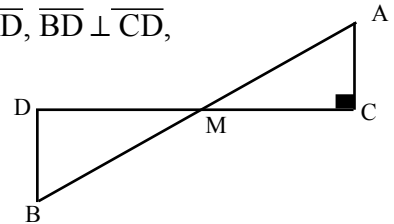
Prove that AB>CD

b) In the opposite figure $\overline{BD}$ is the median of the right angled triangled ABC, AC = 6cm, m ($\angle$C) = 30°

Prove that Δ ABD is an equilateral triangle and find its perimeter.
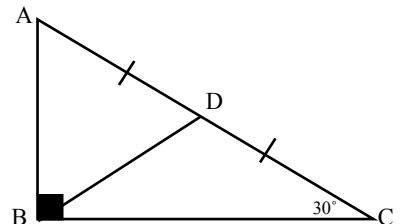
❶ Complete:

1) In any triangle the greatest angle in measure is opposite to ....

2) The number of axes of symmetry in the isosceles triangle = ...

3) The intersection point of the medians of a triangle divides each other from direction of the base in the ratio ....: ....

4) The medians of an isosceles triangle from the vertex angle ....

5) If the length of two sides in an isosceles triangle are 3cm and 7cm then the length of the third side = ...

❷ Choose the correct answer:

1) $\triangle$ ABC if m ($\angle$ B) = 70˚ , m ($\angle$ C) = 60˚ then BC .... AB

   a) <   b) >   c) ⩽   d) ⩾

2) The sum of lengths of any two sides in a triangle is .... the length of the third side.

   a) <   b) >   c) ⩽   d) ⩾

3) In the right-angled triangle, the length of the median from the vertex of the right angle = ... the length of the hypotenuse.

   a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{1}{4}$ d) 2

4) In $\triangle$ ABC: if AD = 9 cm is a median and M is the point of concurrency, then DM = ...cm.

   a) 6   b) 3   c) 4.5   d) 4

5) In $\triangle$ ABC is the right-angled triangle at B m ($\angle$ A) = 30˚and BC = 4 cm then AC = ...cm.

   a) 4   b) 8   c) 2   d) 12

❸ In the opposite figure: $\triangle$ ABC, AC = 8 cm, m ($\angle$ BAC) = 60˚,

m ($\angle$ ABC) = 90˚, D is the midpoint of $\overline{AC}$.

 Find: the perimeter of $\triangle$ ABD

❹ Complete:

a) The base angles of the isosceles triangle are ....

b) In the opposite figure: ABC is a triangle in which AB = AC , $\overline{XY}$ // $\overline{BC}$

   Prove that AXY is an isosceles triangle.
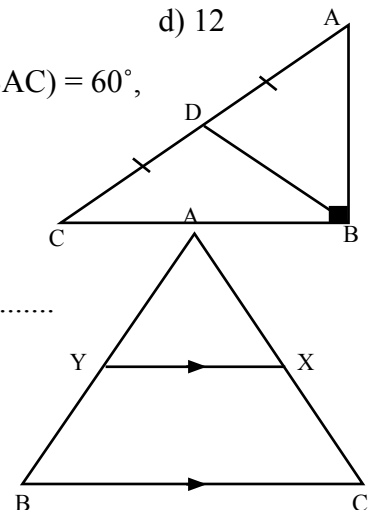
5 **Complete:**

a) In a triangle, if two sides have unequal lengths, ...

....

b) In the opposite figure $\overline{AD}$ // $\overline{BC}$,

m ($\angle$ BAC) = 80˚,   m ($\angle$ CAD) = 32˚

Prove that:

BC > AB
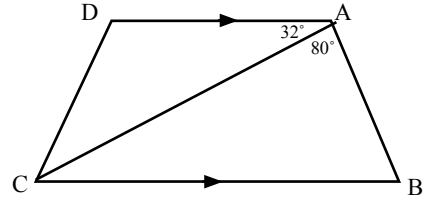
Answer the following questions:

1 **Choose the correct answer from the given ones:**

1) Number of axes of symmetry of the equilateral triangle = ...

  a) 1   b) 2   c) 3   d) 4

2) The base angles of the isosceles triangle are ....

  a) congruent   b) alternate   c) corresponding   d   )

supplementary

3) The length of the side opposite to the angle whose measure is 30˚ in the right-angled triangle = ... the length of the hypotenuse .

  a) quarter   b) half   c) third   d) twice

4) In the triangle ABC, if m ($\angle$ B) = 90˚, then the greatest side is ....

  a) $\overline{AB}$ b) $\overline{BC}$ c) $\overline{AC}$ d) $\overline{XY}$

5) In the triangle ABC, if BC = 9 cm = 7 cm, then

m ($\angle$ C) .... m ($\angle$ A)

  a) =   b) $\geqslant$ c) >   d) <

2 **Complete each of the following:**

a) The medians of any triangle intersect at ....

b) Any point on the axis of the line segment is .... from its terminals.

c) The length of the median from the vertex of the right angle in the right-angled in the right-angled triangle equals ....

d) In any triangle, if two angles are unequal in measure, then the greater angle is opposite to ....

e) The measure of the exterior angle of the equilateral triangle = ...˚

3 In the opposite figure:

AC = 8 cm, D is mid of $\overline{AC}$, m ($\angle C$) = 30˚ and m ($\angle B$) = 90˚.
Find the perimeter of the triangle ABD.
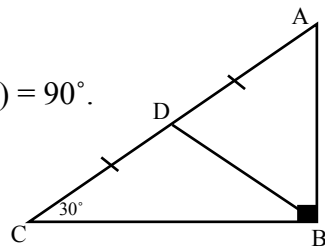
4 a) ABC is a triangle in which m ($\angle A$) = 50˚ and m ($\angle C$) = 80˚.
   Prove that the triangle ABC is an isosceles triangle.

   b) In the opposite figure:
   $\overline{BA} \perp \overline{CD}$, $\overline{BC} // \overline{DE}$
   AB = AC. Find m ($\angle CDE$).
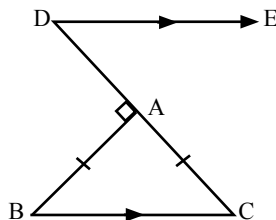
5 a) In the opposite figure:
   E is mid of $\overline{AB}$. D is mid of $\overline{BC}$, $\overline{AD} \cap \overline{CE}$ = {M}
   MC = 5 cm. and MD = 2 cm.
   Find the length of each of $\overline{AD}$ and $\overline{ME}$
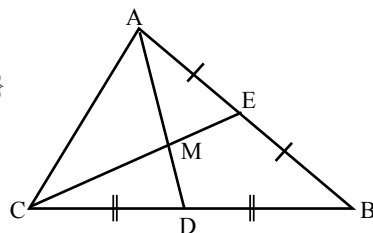
   b) In the opposite figure:
   AB = 7 cm , BC = 8 cm.,
   AD = 5cm. and DC = 3 cm.
   Prove that: m ($\angle ADC$) > m ($\angle ABC$)

Dakahlia **14**   **Dakahlia Educational Directorate**
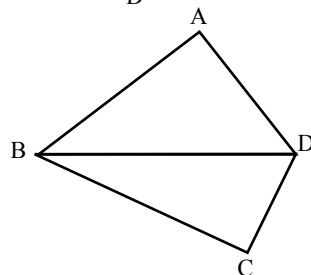
1 Complete:

1) The bisector of vertex angle of isosceles triangle is ....

2) In Δ XYZ: if m ($\angle X$) = 75˚, m ($\angle y$) = 25˚ then the longest side in length is ....

3) If the point D ∈ the axis of symmetry of $\overline{BC}$.

   Then DB = ...

4) If ABC is a right angled triangle at B, and AB = $\frac{1}{2}$ AC

   Then m ($\angle A$) = ...˚

5) XYZ is a triangle, if XY = 3 cm, YZ = 5 cm

   then XZ ∈].........,.........[

❷ Choose:

1) The number of axes of symmetry in the equilateral triangle = ...

    a) 2   b) 1   c) 0   d) 3

2) In $\triangle$ ABC: If AB = AC, m ($\angle$ C) = 50° then m ($\angle$ A) = ...

    a) 80°   b) 40°   c) 100°   d) 50°

3) The point of concurrence of the medians of the triangle divides each median in the ratio of .... from the vertex.

    a) 1 : 3   b) 3 : 1   c) 1 : 2   d) 2 : 1

4) In $\triangle$ ABC: If BC > AB, Then m ($\angle$ A) .... m ($\angle$ C)

    a) =   b) <   c) >   d) $\lessgtr$

5) ABCD is a parallelogram, AB = 3 cm. BC = 5 cm, Then its perimeter = ...cm

    a) 8   b) 16   c) 15   d) 30

❸ a) In the opposite figure:

ABC is a triangle, m ($\angle$ B) = m ($\angle$ C)

Find the perimeter of the triangle ABC.

(figure: triangle ABC with sides labeled 2x − 1, x − 6, x + 3)

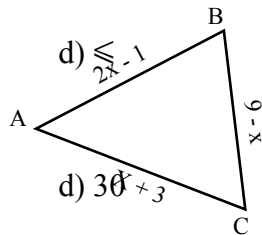**b) In the opposite figure:**

    LX = LZ , YZ > YX

    Prove that: m ($\angle$ YXL) > m ($\angle$ YZL)

(figure: quadrilateral with vertices L, X, Y, Z)
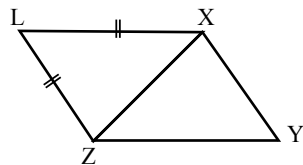
❹ a) ABC is a triangle in which AB = $\frac{1}{2}$ BC = 3.5 cm, and AC = 8 cm, Order the measure of its angles ascendingly.

b) In the opposite figure:

    AB = AC, m ($\angle$ ABC) = 55

    m ($\angle$ ACD) = 25 and D $\in$ $\overrightarrow{BA}$

    Prove that: AB > AD

(figure: triangle with vertices D, C, B, A; angles 25° at C, 55° at B)
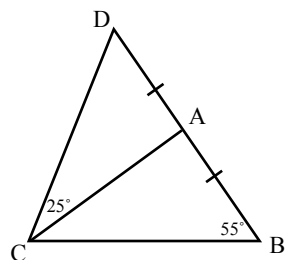
❺ In the figure:

    ABC is a triangle in which

    AB = AC , BX = CY

    If m ($\angle$ B) = 50°, m ($\angle$ CAY) = 30°

    Prove that: 1) AYX is isosceles $\triangle$

              2) Find m ($\angle$ AXY)

(figure: triangle ABC with points X, Y on base, angle 30° at A, angle 50° at B)
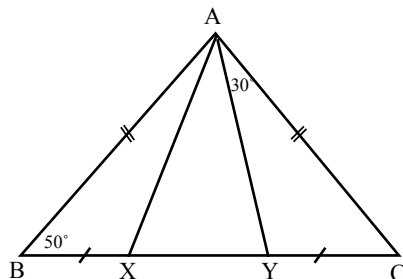
1 **Complete:**

a) The point of intersection o the medians in a triangle divides each median by the ratio .... from the base.

b) The bisector of the vertex angle of an isosceles triangle is .... to the base and ....

Δ ABC , m ($\angle$ B) = 90˚, m ($\angle$ C) = 30˚

if AC = 10 cm .Then AB = ...cm

d) The longest side in the right-angled triangle is ....

e) The measure of the exterior angle of equilateral triangle = ...˚
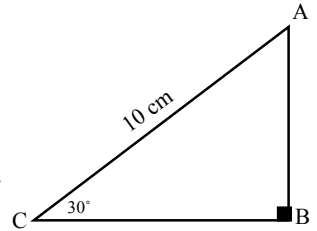
2 **Choose the correct answer:**

a) In a triangle ABC , if AB = AC and m ($\angle$ A) = 40˚

then m ($\angle$ C) = ...   (40˚ , 70˚ , 140˚ , 50˚)

b) If the lengths of two sides of triangle is 7 , 12 cm,

then the third side is ....   (7 , 5 , 4 , 3)

c) In ΔABC: If m ($\angle$ B) = 70˚, m ($\angle$ A) = 50˚ then AB ....BC

(> , < , =, ≡)

d) In the Δ XYZ, if XY > ZX, then m ($\angle$ Y) ....m ($\angle$ Z)

(> , < , =, ≡)

e) The number of axes of symmetry of isosceles triangle is ....˚

(1 , 0 , 3 , 4)

3 **In the opposite figure:**

ABC is a triangle in which AB = AC

$\overline{XY}$ // $\overline{BC}$, prove that

ΔAXY is an isosceles triangle

4 **a) In the opposite figure:**

ABC is atriangle, E $\in$ $\overrightarrow{BA}$

$\overline{AD}$ // $\overline{BC}$, m ($\angle$ CAD) = 35˚

m ($\angle$ DAE) = 75˚

Prove that AC > AB
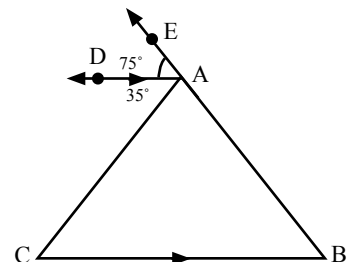
b) In the opposite figure:

ABCD is a quadrilateral
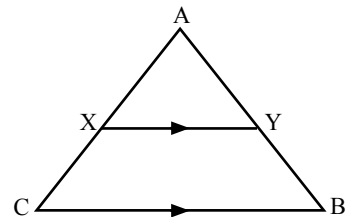in which AD = DC, BC > AB

m (∠ BAD) > m (∠ BAD)
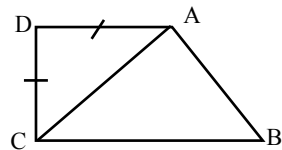
5 a) In the opposite figure:

m (∠ ABC) = m (∠ ADC) = 90°

m (∠ ACB) = 30° and

$\overline{DE}$ is a median of Δ ADC,

$\overline{AB}$ = 3 cm

Find, the length of $\overline{DE}$
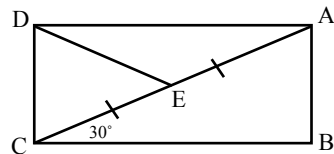
b) In the opposite figure:

ZY = YM = MZ = ZX

m (∠ ZMX) = 50°

Find m (∠ YZX)

1 Choose the correct answer:

a) The number of axis of symmetry of isosceles triangle ....

(0 , 1 , 2 , 3)

b) If the length of two sides of an isosceles triangle 3cm, 7 cm then the length of
the third side = ... cm.

(3 , 4 , 7 , 10)

c) In the opposite figure ABC is right angled triangle at B,

$\overline{BD}$ is median m (∠ C) = 30° then A B D is .... triangle.

(equilateral , isosceles, scalene, right angled)
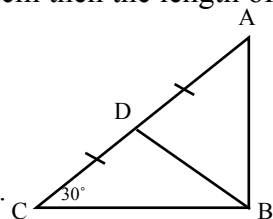
d) In the opposite figure ....

C , D ∈ $\overleftrightarrow{AB}$ if A B > C D then A C .... B D.

(> , < , = , ≡)
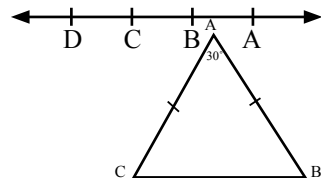
e) In the opposite figure Δ A B C, AB = AC

m (∠ A) = 50° then m (∠ B) ....°.

(50° , 130° , 65° , 60°)

2 **Complete to form a correct statement:**

a) The measure of an exterior angle of an equilateral triangle = ...˚

b) The point of median of triangle divides each median in ratio .... from base.

c) Triangle A B C in which A B =3cm, B C = 5 cm then A C ∈].......'......[.

d) In a triangle the smallest angle in measure opposite ....

e) If the measurement of an angle in the isosceles triangle is 100˚ then the measurement of an angle of other two angles = ...

3 **In the opposite figure A B C D is parallelogram find in proof.**

1) m (∠A)

2) Perimeter of the A B C D.
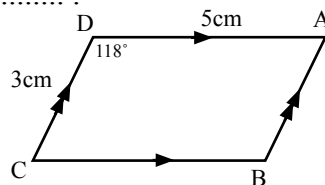
4 **a)** ABC is a triangle in which m (∠A) = 40˚, m (∠B) = 75˚ order the lengths of sides of △ ABC in ascending order.**:**

b) In the opposite figure:

ABC is triangle in which AB = 16cm,

AC = 18cm, BC = 20cm,

E is midpoint $\overline{AC}$, F is midpoint $\overline{AB}$

and $\overline{AD} \perp \overline{BC}$ find the perimeter of △ DEF.
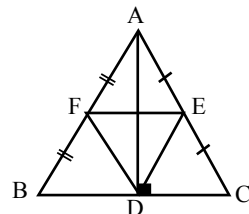
5 **a) In the opposite figure:**

ABCD is quadrialteral in which

AB = 6cm, BC = 4 cm, CD = 7cm

, DA = 8 cm prove that

m (∠BCD) > m (∠BAD)
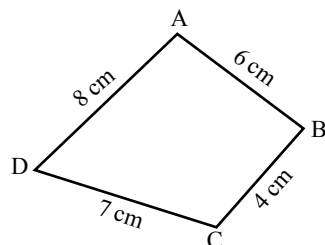
b) In the opposite figure:

ABC is an isosceles triangle in which BD = EC

AB = AC, D ∈ $\overline{BC}$, E ∈ $\overline{BC}$ prove that

1) △ ADE is isosceles,

2) ∠ADE ≡ ∠AED
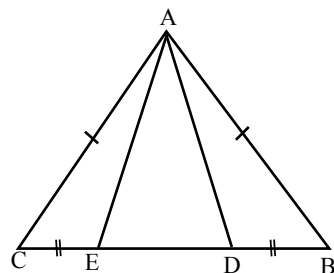
Port Said **17** **South Educational Directorate**

1 **Choose the correct answer:**

1) The point of concurrence of the medians of the triangle divides each median in the ratio of .... from its base.

a) 2 : 1   b) 1 : 2   c) 2 : 3   d) 3 : 2

2) In the opposite figure N°= ....

  a) 42   b) 48   c) 138   d) 96
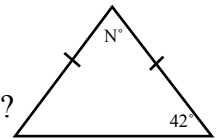
3) Which of the following groups are valid in drawing a triangle?

  a) 5 cm, 7 cm, 8 cm   b) 4 cm, 9 cm, 3 cm

  c) 10 cm, 6 cm, 4cm   d) 8 cm , 3 cm, 4 cm

4) The length of the side opposite to the angle of measure ....° in the right-angled triangle equals half the length of the hypotenuse.

  a) 30   b) 40   c) 60   d) 45

5) If the triangle is equilateral, then it is equiangular where each angle of measure = ...°

  a) 30   b) 45   c) 60   d) 90

2 Complete:

1) In the right-angled triangle, the .... is the longest side.

2) The medians of a triangle intersect in ....

3) If: x>y, z is a positive number then: xz > ....

4) The interval which the third side of a triangle belongs to if the lengths of the other two sidies were 6 cm, 9 cm is ....

5) The number of symmetrical axes in the equilaterl triangle is ....

3 A) In the opposite figure:

ABC is a right- angled triangle is B,

D is a midpoint of $\overline{AC}$, m ($\angle$C) = 30˚, AC = 10 cm

Find: 1) the length of $\overline{BD}$ 2) the length of $\overline{AB}$

       3) the perimeter of Δ ABD
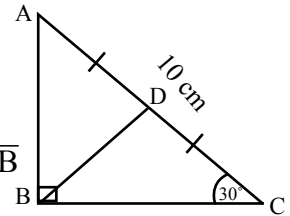
b) In the opposite figure:

XY = XL, ZY = ZL, LM = YM

Prove that X , M and Z are on the same straight line
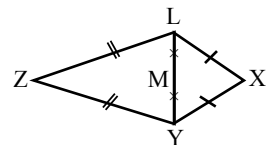
4 A) In the opposite figure:

ABC is a triangle which m($\angle$B) = m ($\angle$C)

Find: the perimeter of the triangle.
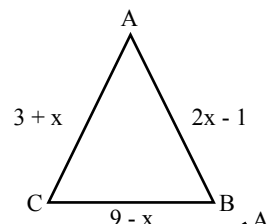
b) In the opposite figure:

$\overline{AB} \cap \overline{CD}$ = {M}, $\overline{AC} \perp \overline{CD}$, $\overline{BD} \perp \overline{CD}$

Prove that: AB > CD

5 In the opposite figure:

$\overrightarrow{AD}$ // $\overline{BC}$, m ($\angle$ BAC) = 80˚, m ($\angle$ DAC) = 30˚.

Prove that: BC > AB
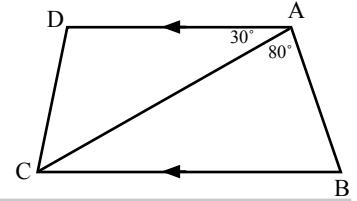
1 **Complete:**

a) The base angles of an isosceles triangle are ....

2) The number of the axes of symmetry in an equilateral triangle is ....

3) In the right-angled triangle the length of the median from the vertex

of the right angle equals .... the length of the hypotenuse.

4) In Δ ABC , if m ($\angle$ A) = 100˚ then the greatest side length is ....

5) By using the opposite figure AC = ...cm
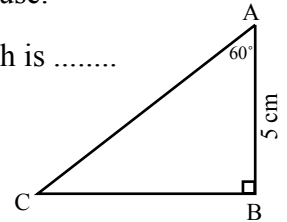
2 **Choose the correct answer:**

1) The intersection point of the medians of a triangle divides each of them at the ratio .... : .... from the base.   (1 : 2 , 2 : 1 , 1 : 4 , 1 : 3)
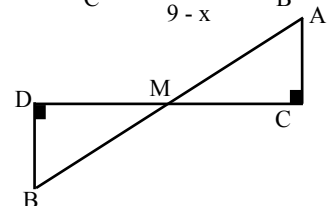
2) In The isosceles triangle if the measure of one of the two base angles = 50˚ then the measure of the vertex angle = ...   (50˚ , 100˚ , 80˚ , 130˚)

3) The length of two sides of an isosceles triangle are 4 cm, 9 cm then the length of the third side = ...cm   (4,8,7,9)

4) The measure of the exterior angle of an equilateral triangle = ...

(60˚ , 80˚ , 120˚ , 130˚)

5) ABC is a triangle in which m ($\angle$ B) = 70˚ , m ($\angle$ C) = 50˚then AC............ AB.   (> , <, ≡ , =)

3 **In the opposite figure:**

ABC is a triangle where

AB > AC , $\overline{XY}$ // $\overline{BC}$

Prove that: m ($\angle$ AYX) > m ($\angle$ AXY)
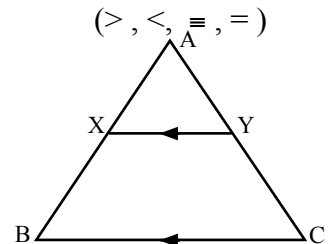
4 **a) In the opposite figure:**

If D is the midpoint of $\overline{AB}$.

E is the midpoint of $\overline{AC}$

and $\overline{BE} \cap \overline{DC} = \{M\}$

If DE = 4 cm, DM = 3 cm and ME = 2 cm

Find the perimeter of $\triangle$ BMC .
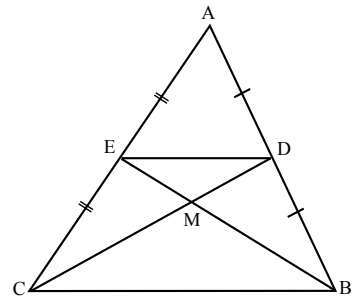
b) In the opposite figure:

$\overline{AB} \parallel \overline{DC}$, $\overline{AD} \cap \overline{BC} = \{0\}$

and OA = OB

Prove that: $\triangle$ ODC is an isosceles triangle.
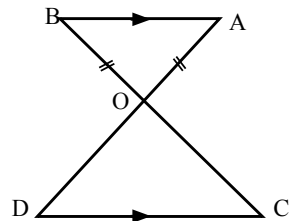
5 **a) In the opposite figure:**

ABC is a right angled triangle at B.

D is a midpoint of $\overline{AC}$

m ($\angle$ C) = 30˚, AB = 7cm

Find with proof: 1) length of $\overline{AC}$.   2) length of $\overline{BD}$
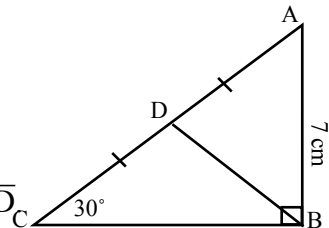
b) In the opposite figure:

ABCD is a quadrilateral in which

AB = 8 cm , BC = 6 cm

CD = 9 cm and DA = 10 cm

Prove that: m ($\angle$ ABC) > m ($\angle$ ADC).

Suez   **19**   **Port Tawfeek Educational Directorate**

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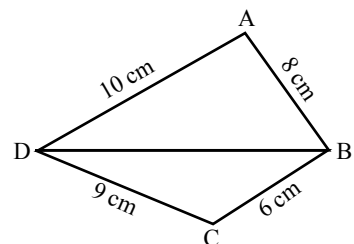
1 **Complete:**

1) $\triangle$ ABC in which AB = 3 cm, BC = 5 cm, then AC $\in$]...... , ...[

2) The two base angles of the isosceles triangle are ....

3) The side opposite to the angle of measure 30˚ in the right angled triangle equals .... the hypotenuse.

4) The bisector of the vertex angle in an isosceles triangle .... of ....

5) If the point A lies on the axis of symmetry of $\overline{xy}$, then .... : ....

2 **Choose the correct answer:**

1) In Δ ABC, If BC > AB, then m (∠A) .... m (∠C)

   a) >   b) <   c) =   d) ⩾

2) The medians of the triangle intersect at one point ,this point divides each in the ratio .... from the base.

   a) 2 : 1   b) 1 : 2   c) 3 : 4   d) 1 : 1

3) In isosceles triangle if one of its angles is 60˚, then it has .... axes of symmetry.

   a) 1   b) 2   c) 3   d) an infinite

4) In Δ ABC, then AB + AC - BC > ....

   a) 2   b) 1   c) zero   d) otherwise

5) In the opposite figure:

   If D ∈ $\overrightarrow{BC}$, $\overline{AB} = \overline{BC}$, then m (∠B) =...............˚

   a) 36˚   b) 72˚   c) 180˚   d) 50˚
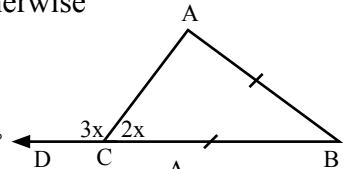
3 **In the opposite figure:**

ABC is isosceles triangle, AB = AC , ∈ $\overline{BC}$

Then prove that: AB > AD
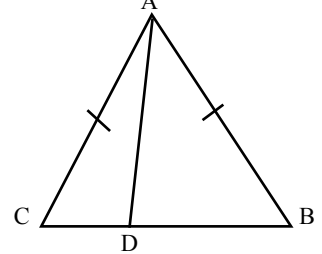
4 **a) In the opposite figure:**

$\overline{AD}$ // $\overline{BC}$, m (∠DAC) = 30˚ , m (∠ BAC) = 80˚

Then prove that: BC > AB
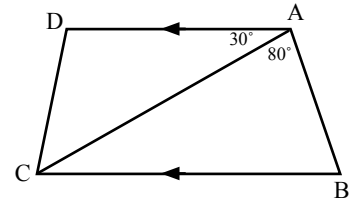
   b) In the opposite figure:

     Complete:

     1) AC= .... cm

     2) DE = ... cm
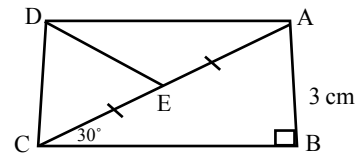
5 **a) In the opposite figure:**

   AB = 5 cm, BC = 7 cm, CD = 9 cm

   And AD = 8 cm, then

   Prove that: m (∠ BAD) > m (∠BCD)
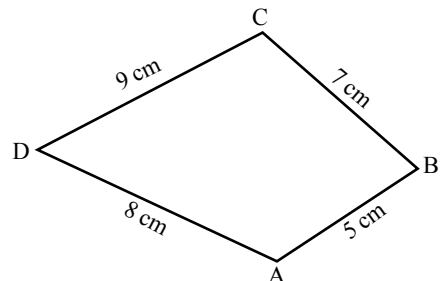
b) In the opposite figure:

AB = BC = AC, m ($\angle$ D) = 40˚

And = DC, then find m ($\angle$ BCD)
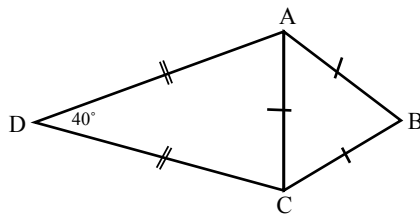
1 **Choose the correct answer:**

1) The numbers 7 , 3 and .... can be lengths of sides of an isosceles triangle.

    a) 3   b) 7   c) 8   d) 4

2) The number of axes of symmetry of the equilateral triangle is ....

    a) 1   b) 2   c) 3   d) zero

3) In $\triangle$ ABC: if m ($\angle$ A) = 70˚, m ($\angle$ B) = 50˚, then AB ....BC.

    a) >   b) <   c) $\leqslant$ d) =

4) In $\triangle$ XYZ: if XY = ZY m ($\angle$ Y) = 80˚, then m ($\angle$ X) = ...

    a) 80˚   b) 50˚   c) 100˚   d) 40˚

5) If the length of median drawn from a vertex of triangle equals half the length of the opposite side to this vertex then the vertex angle is ....

    a) acute   b) obtuse   c) right   d) reflex

2 **Complete:**

1) The longest side in the right-angled triangle is ....

2) The bisector of the vertex angle of the isosceles triangle .... and ....

3) In $\triangle$ ABC: if AB>AC, then m ($\angle$ B) .... m ($\angle$ C).

4) In the right-angled triangle the length of the side opposite to angle with measure 30˚ equals .... the length of the hypotenuse.

5) The point of intersection of the medians of a triangle divides each median in the ratio .... from the vertex.

3 **a)** Draw the line segment $\overline{AB}$ with length 7cm. Using a compass and the ruler to draw the axis of symmetry of $\overline{AB}$. "Don't remove the arcs"

b) In the opposite figure:

ABCD is a quadrilateral in which

AB = AD , DC > BC

Prove that: m ($\angle$ ABC) > m ($\angle$ ADC)

4 **a) In the opposite figure:**

ABC is a right-angled triangle at B, m ($\angle$ C) = 30°

D is a midpoint of $\overline{AC}$, AC = 10 cm.

Find the length of $\overline{AB}$, $\overline{BD}$
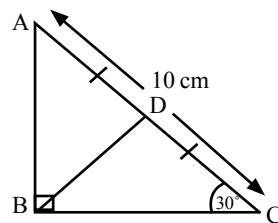
b) In the opposite figure:

$\overline{AD}$ // $\overline{BC}$, m ($\angle$ BAC) = 80° , m ($\angle$ BAC) = 32°
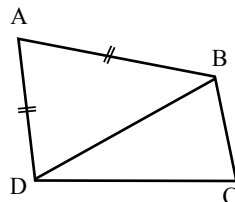
Prove that: BC > AB
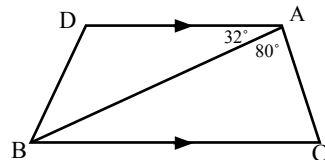
5 **a) In the opposite figure:**

D is the midpoint of $\overline{XY}$, E is the midpoint of $\overline{XZ}$,

$\overline{YE}$ $\cap$ $\overline{ZD}$ = {M} , YE = 9 cm, DM = 4 cm., DE = 6 cm.

Find the perimeter of $\triangle$ YMZ.
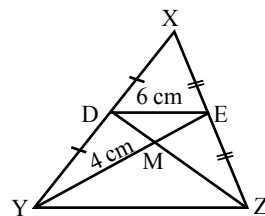
b) In the opposite figure:

$\overline{BC}$ // $\overline{XY}$, AB = AC

Prove that: $\triangle$ AXY is an isosceles triangle.

Beni Suef **21** Nasser Educational Departrment - Nasser Experimental Language School

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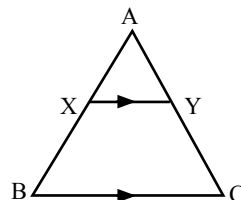
1 **Choose the correct answer:**

1) If the lengths of two sides in a triangle are 3 cm, 7 cm, then the length of the third side may be ....

   a) 3   b) 4   c) 6   d) 10

2) The triangle ABC is obtuse-angled triangle at B, then the longest side is ....

   a) AB   b) BC   c) AC   d) AD

3) In the isosceles triangle if one of its base angles is of measure 40°, then its vertex angles is of measure ....

   a) 40°   b) 80°   c) 100°   d) 60°

4) The measure of exterior angle in an equilateral triangle ....

   a) 60°   b) 70°   c) 80°   d) 120°

5) In a triangle ABC: m ($\angle$B) = 75°, m ($\angle$C) = 50°,then BC .... AB

    a) <   b) >   c) =   d) ≡

❷ Complete the following:

1) The points of concurrence of the medians of the triangle divides each median in the ratio ....: .... from the base.

2) Any point at the axis of the line of symmetry is at two equal distances from ......

3) The length of side opposite to the angle whose measure = 30° in the right-angled triangle = ...

4) In the right-angled triangle the length of the median from the vertex of the right angle equal .... the legnth of the hypotenuse.

5) In triangle ABC, if m($\angle$A) = 70°, m ($\angle$B) = 30°, then the longest side in length is ....

❸ a) In the opposite figure:

ABCD is a quadrilateral,

m ($\angle$B) = m ($\angle$D) = 90° , m ($\angle$ACB) = 30°,

E is the midpoint of $\overline{AC}$

Prove that: AB = DE
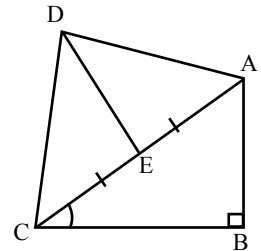
b) In the opposite figure:

m ($\angle$BAC) = 70° and m ($\angle$DAC) = 30°

$\overline{AD}$ // $\overline{BC}$

Prove that: AC > CB
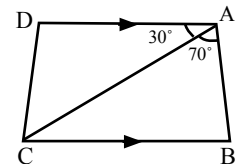
❹ a) In the opposite figure:

ABC is a right-angled triangle at B,

$\overline{AE}$ and $\overline{BD}$ are two medians of the triangle

intersecting at M if AC = 12cm

Calculate the length of each $\overline{BD}$ and $\overline{MD}$
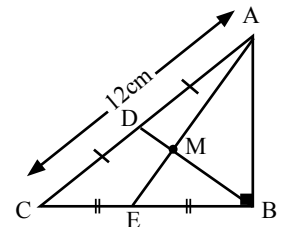
b) In the opposite figure:

ABCD is a quadrilateral in which:

AD > AB and BC = CD

Prove that:

M ($\angle$ABC) > M ($\angle$ADC)
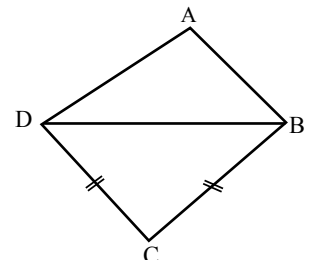
5 **a) In the opposite figure:**

AB= AC = CD = DA

, m ($\angle$ BAC) = 50˚

Find: m ($\angle$ BCD)
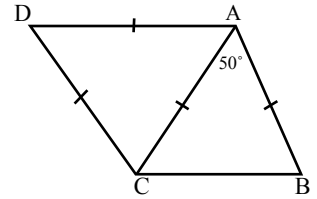
b) $\triangle$ ABC which: m ($\angle$ A) = (5x +2)˚, m ($\angle$ B) = (6X - 10)˚

, m ($\angle$ C) = (X +20)˚

Arrange the lengths of the side: of the triangle in an ascending order.

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❶ Complete:

1) The number of symmetrical axes in the equilateral triangle is ....

2) The base angls in an isosceles triangle are ....

3) If the length of two sides in an isosce les triangle were 3 cm, 7 cm then the length of the third side = ... cm.

4) Triangle ABC in which AB = 3 cm, BC = 5 cm, then AC $\in$].........,........[

5) The longest side length in the right angled triangle is ....

❷ Choose:

1) In triangle ABC, if m $\angle$ A = 70˚, m $\angle$ B = 30˚, then the longest side in the length is is ....

($\overline{AB}$, $\overline{BC}$, $\overline{CA}$, not given)

2) The intersecting point of medians of a triangle divides each other from the direction of the base in a ratio ....

(1 : 2 , 2 : 1 , 1 : 3 , 2 : 3)

3) In the opposite figure: AC = ...

(6 cm , 3 cm , 12 cm , 2 cm)
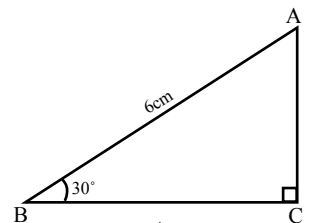
4) In the opposite figure:

Y˚=............

(54˚ , 126˚, 63˚, 180˚)

5) In the opposite figure:

AC= ....

(AB , CB , BD , CD) =
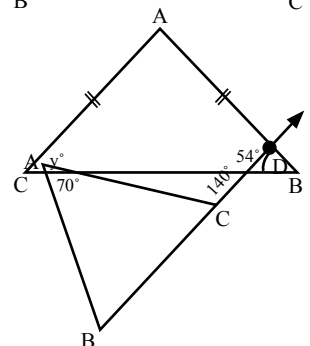
❸ **Line segment $\overline{AB}$ which its length 6 cm, draw the straight line (L) the symmetry in the figure opposite:**

ABC is a triangle, X in a mid-point AB, Y in a mid-point BC,

$XY = 5$ cm $= \overline{XY} \cap \overline{AY} = \{M\}$

Where CM = 8 cm, YM = 3 cm

Find: (1) The perimeter of triangle MXY

(2) The perimeter of triangle MAC
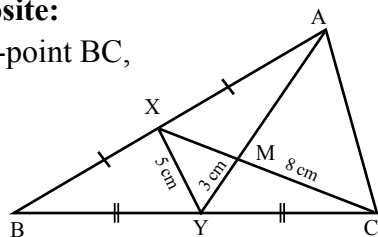
❹ **a) The bisector of the vertex angle in the isosceles triangle bisects the base and is ....**

b) In the opposite figure:

$\overline{BD}$ bisects $\angle ABC$ and intersects $\overline{AC}$ at D,

$\overline{DE} \,/\!/\, \overline{BC}$ wherer $E \in \overline{AB}$

Prove: the triangle EBD is an isosceles triangle
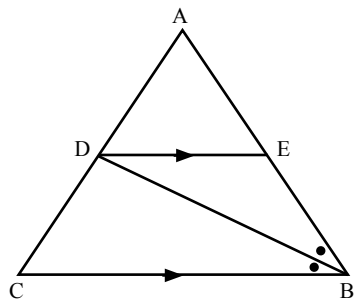
❺ **a) The length of median draw from the vertex of the right angle in a triangle is equal ....**

b) Triangle ABC in which AB = 2.7 cm, BC = 8.5 cm, AC = 6 cm, Order the measure of angles of the triangle ascendingly.

Exam (1) geometry:

Complete the following:

1. The base angles of the isosceles triangle are ···············

2. In $\triangle ABC$, if $\overline{AB} \perp \overline{BC}$ and $AB = BC$, then $m(\angle A) = $ ···············°

3. In $\triangle ABC$, if $AB > AC$, then $m(\angle C)$ ············· $m(\angle B)$

4. The triangle whose side lengths are $(2X - 1)$ cm., $(X + 3)$ cm., 7 cm. becomes an equilateral triangle when $X = $ ············· cm.

5. **In the opposite figure :**

    $AC = $ ············· BZ

Choose the correct answer:

1. In $\triangle ABC$, if $AC = 4$ cm., $BC = 3$ cm., then $m(\angle B)$ ············· $m(\angle A)$

    (a) $>$ (b) $<$ (c) $=$ (d) $\leq$

2. The length of the side opposite to the angle of measure 30° in the right-angled triangle equals ············· the length of the hypotenuse.

    (a) half   (b) twice   (c) third   (d) quarter

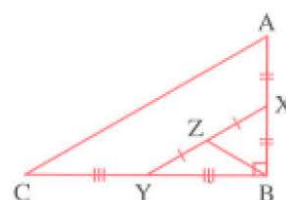3. In $\triangle ABC$, if $m(\angle A) = 100°$ and $AB = AC$, then $m(\angle ABC) = $ ·············

    (a) 80°   (b) 60°   (c) 40°   (d) 30°

4. The point of intersection of the medians of the triangle divides each of them in the ratio ············· from the base.

    (a) 1 : 3   (b) 3 : 1   (c) 1 : 2   (d) 2 : 1

5. If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of $\overline{BD}$, then the longest side is ·············

    (a) $\overline{AB}$ (b) $\overline{AC}$ (c) $\overline{AD}$ (d) $\overline{BD}$

6. The triangle whose side lengths are 2 cm., $(X + 3)$ cm. and 5 cm., becomes an isosceles triangle when $X = $ ············· cm.

    (a) 1   (b) 2   (c) 3   (d) 4

Question 3:

[a] In $\triangle ABC$, if m $(\angle A) = (6\ X)°$, m $(\angle B) = (4\ X - 9)°$ and m $(\angle C) = 5\ (X - 2)$, arrange the side lengths of $\triangle ABC$ ascendingly.

[b] In the opposite figure :

m $(\angle ABC) = 90°$, m $(\angle C) = 30°$

, AD = DC and AC = 10 cm.

Find : The perimeter of $\triangle ABD$
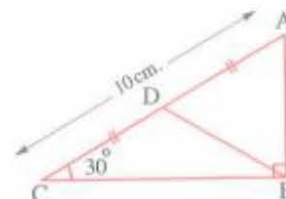
Question 4:

[a] In the opposite figure :

If $\overline{AC} \cap \overline{BD} = \{M\}$

, $\overline{AD}\ //\ \overline{BC}$ and MB = MC

, prove that :

$\triangle MAD$ is isosceles.

[b] In the opposite figure :

m $(\angle BAC) = 70°$, m $(\angle B) = 55°$

and m $(\angle ACD) = 90°$

Prove that : AD > AB
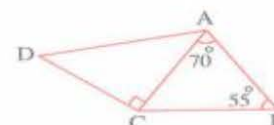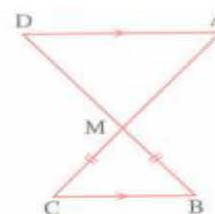
Question 5:

[a] In the opposite figure :

ABC is a triangle in which AB = AC

, $\overrightarrow{AE}$ bisects $\angle BAC$

Prove that :

[1] $BE = \frac{1}{2}\ BC$ [2] BD = CD

[b] In the opposite figure :

AB = AC , m $(\angle B) = 2\ X + 13°$

, m $(\angle C) = 3\ X - 17°$

Find :

The measures of the angles of $\triangle ABC$
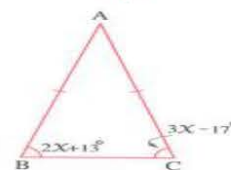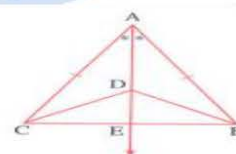
Exam (2) geometry;

Complete the following:

1. The median of an isosceles triangle from the vertex angle bisects ·············· and is perpendicular to ··············

2. The measure of the exterior angle at any vertex of the equilateral triangle is ··············°

3. The base angles of the isosceles triangle are ··············

4. ABC is a triangle in which AB = 4 cm. , BC = 6 cm. , then AC ∈]·············· , ··············[

5. The longest side in the right-angled triangle is ··············

Choose the correct answer:

1. An isosceles triangle has two sides of lengths 6 cm. and 12 cm. , then the length of the third side equals ·············· cm.

   (a) 6   (b) 9   (c) 12   (d) 18

2. In △ XYZ , if m (∠ Y) = 115° , then the longest side is ··············

   (a) $\overline{XY}$ (b) $\overline{YZ}$

   (c) $\overline{ZX}$ (d) the median of the triangle.

3. The lengths 5 cm. , 4 cm. and ·············· cm. are lengths of sides of a triangle.

   (a) 8   (b) 9   (c) 12   (d) 10

4. The triangle having two angles of measures 74° and 53° is ·············· triangle.

   (a) an isosceles   (b) an equilateral   (c) a scalene   (d) a right-angled

5. The intersection point of the medians of a triangle divides each median by the ratio 1 : ·············· from the base.

   (a) 1   (b) 2   (c) 3   (d) 4

6. If two sides of a triangle have unequal lengths , then the smaller side is opposite to the angle of the ·············· measure from that is opposite to the other side.

   (a) greater   (b) smaller   (c) equal   (d) otherwise

Question 3:

[a] **In the opposite figure :**

If E is the midpoint of $\overline{AC}$ and D is the midpoint of $\overline{BC}$

, ED = 5 cm. , MD = 3 cm. and BE = 15 cm.

, **find :** The perimeter of $\triangle$ AMB
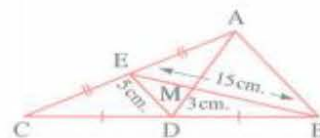
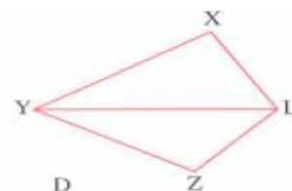[b] ABC is a triangle in which : m ($\angle$ B) = 40° , m ($\angle$ C) = 80°

Arrange its side lengths ascendingly.

Question 4:

[a] **In the opposite figure :**

If XY > XL

, YZ > ZL

, **prove that :** m ($\angle$ XLZ) > m ($\angle$ XYZ)

[b] **In the opposite figure :**

m ($\angle$ B) = 90° , m ($\angle$ ACB) = 30°

, E is the midpoint of $\overline{AC}$ and AB = DE = 6 cm.

Find : 1 The length of $\overline{AC}$

2 m ($\angle$ ADC)
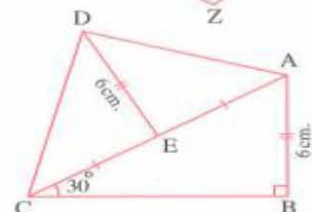
Question 5:

[a] **In the opposite figure :**

$\overline{AD}$ // $\overline{BC}$, m ($\angle$ BAC) = 70°

, m ($\angle$ DAC) = 30°

Prove that : AC > BC

[b] **In the opposite figure :**

AB = 4 cm. , BC = 6 cm.

, AC = 7 cm.

Arrange the measures of the angles of the

triangle ABC descendingly.

Exam (3) geometry:

Complete the following:

1 The length of the side which is opposite to the angle of measure 30° in the right-angled triangle equals ⋯⋯⋯⋯ the length of the hypotenuse.

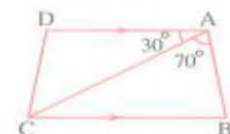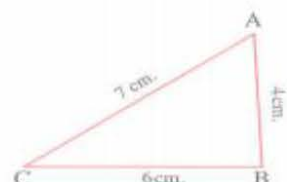**2** In the right-angled triangle , the longest side is the ⋯⋯⋯⋯

3 The straight line drawn from the vertex of the isosceles triangle , perpendicular to the base ⋯⋯⋯⋯ this vertex.

4 The measure of the exterior angle of the equilateral triangle equals ⋯⋯⋯⋯°

5 The number of axes of symmetry of the isosceles triangle is ⋯⋯⋯⋯

Choose the correct answer:

1 In $\triangle ABC$, if $AB = AC$, $m (\angle B) = 40°$, then $m (\angle A) = $ ⋯⋯⋯⋯
   (a) 70°   (b) 55°   (c) 100°   (d) 40°

2 The point of concurrence of the medians of the triangle divides each median at the ratio ⋯⋯⋯⋯ from the vertex.
   (a) 1 : 2   (b) 2 : 1   (c) 2 : 3   (d) 1 : 3

3 In $\triangle ABC$, if $AB = 7$ cm. , $BC = 10$ cm. , then the length of $\overline{AC}$ must satisfy which of the following inequalities ?
   (a) $3 \leq AC \leq 17$ (b) $3 < AC < 17$ (c) $10 < AC < 20$ (d) $14 < AC < 20$

4 If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of $\overline{BD}$, then the longest side in $\triangle ABD$ is ⋯⋯⋯⋯
   (a) $\overline{AB}$ (b) $\overline{AC}$ (c) $\overline{AD}$ (d) $\overline{BD}$

5 In $\triangle ABC$, if $m (\angle A) = 64°$, $m (\angle B) = 35°$, then the longest side of the triangle is ⋯⋯⋯⋯
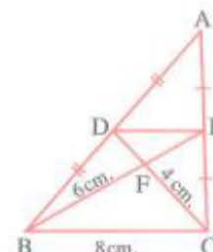   (a) $\overline{AB}$ (b) $\overline{AC}$ (c) $\overline{BC}$ (d) otherwise.

Question 3:

[a] XYZ is a triangle in which m (∠ X) = 60° , m (∠ Y) = 50°

Order the lengths of the sides of the triangle descendingly.

[b] In the opposite figure :

ABC is a triangle in which D , E are the midpoints of $\overline{AB}$, $\overline{AC}$

, FC = 4 cm. , FB = 6 cm.

, BC = 8 cm.

Find : The perimeter of Δ DFE

Question 4:

[a] In the opposite figure :

In Δ ABC : $\overline{BE}$, $\overline{CD}$ are two medians , MB = 6 cm.

, BC = 12 cm. , MC = 8 cm.

Find : The perimeter of Δ MDE
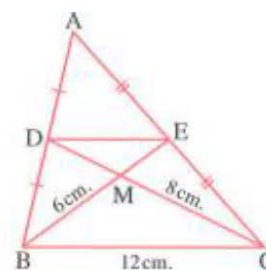
[b] In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, AD = DC

, m (∠ D) = 100° , m (∠ B) = 70°

Prove that : ☐1 AC > AB   ☐2 Δ ABC is isosceles.
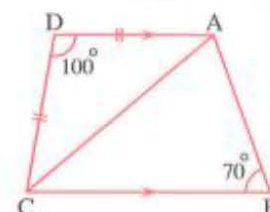
Question 5:

| In the opposite figure :

ABC is a triangle , AB = AC , m (∠ B) = (X + 5)°

, m (∠ C) = (2 X − 15)°

Find : m (∠ A) (show all of your work)
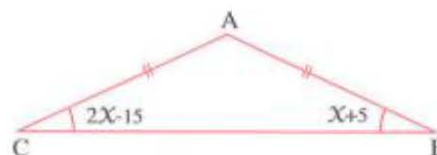
[b] In the opposite figure :

N is the point of concurrence of the medians of the triangle XYZ

, LZ = 15 cm. , YM = 18 cm.

, XY = 20 cm.

Find : The perimeter of the triangle NLY

[c] In the opposite figure :

m ($\angle$ ABC) = m ($\angle$ BDE) = 90°

, D is the midpoint of $\overline{AC}$

, m ($\angle$ E) = 30° , AC = 12 cm.

Find with proof : The length of $\overline{BE}$

Q1 : Choose the correct answer

1) If the lengths of two sides in an isosceles triangle are 8 cm and 4 cm , then the length of the third side is .... cm

(a. 3   ,   b. 4   ,   c. 8   ,   d. 12   )

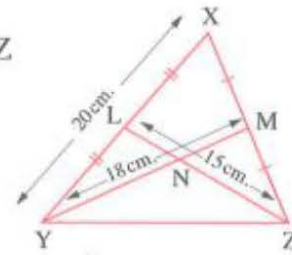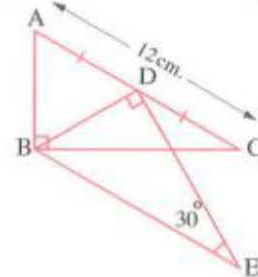2) $\triangle$ XYZ in which m (< Z) = 70° , m (< Y) = 60° , then YZ .... XY

(a. >   ,   b. <   ,   c. =   ,   d. Twice   )

3) The sum of the measures of the accumulative angles at the point equals ....

(a. 60°   ,   b. 90°   ,   c. 180°   ,   d. 360°   )

4) $\triangle$ ABC is a right-angled triangle at B , AC = 20 cm and D is the midpoint of $\overline{AC}$ then BD = ... cm

(a. 10   ,   b. 8   ,   c. 6   ,   d. 5   )

5) If $\triangle$ ABC ≡ $\triangle$ XYZ , then AB = ...

(a. XZ   ,   b. XY   ,   c. YZ   ,   d. BC   )

6) $\triangle$ ABC , if AB = 6 cm and BC = 9 cm , then AC ∈ ....

(a.]3 , 15[,   b. [3 , 15]   ,   c.]3 , 15]   , .   d. [3 , 15[   )

Q2 : Complete each of the following

1) The bisector of the vertex angle of the isosceles triangle bisects the base and ....

2) The length of any side in a triangle ....the sum of lengths of the two other sides.

3) The measure of each of two equal complementary angles equals ....

4) The number of axes of symmetry of the isosceles triangle is ....

5) If the measure of one angle of an isosceles triangle is 60 , then the triangle is ....

Q3 : a) Arrange the measures of the angles of $\triangle$ LMN , If LM = 3 cm , MN = 5 cm and LN = 7 cm

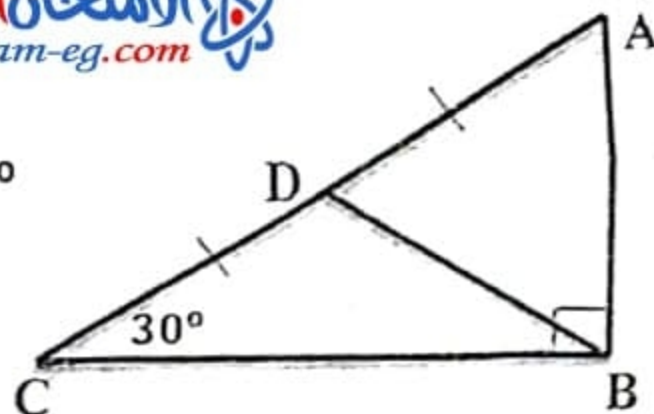b) *In the opposite figure :*

ABC is a right-angled triangle at B , m (< C) = 30°

AC = 8 cm and D is the midpoint of $\overline{AC}$.
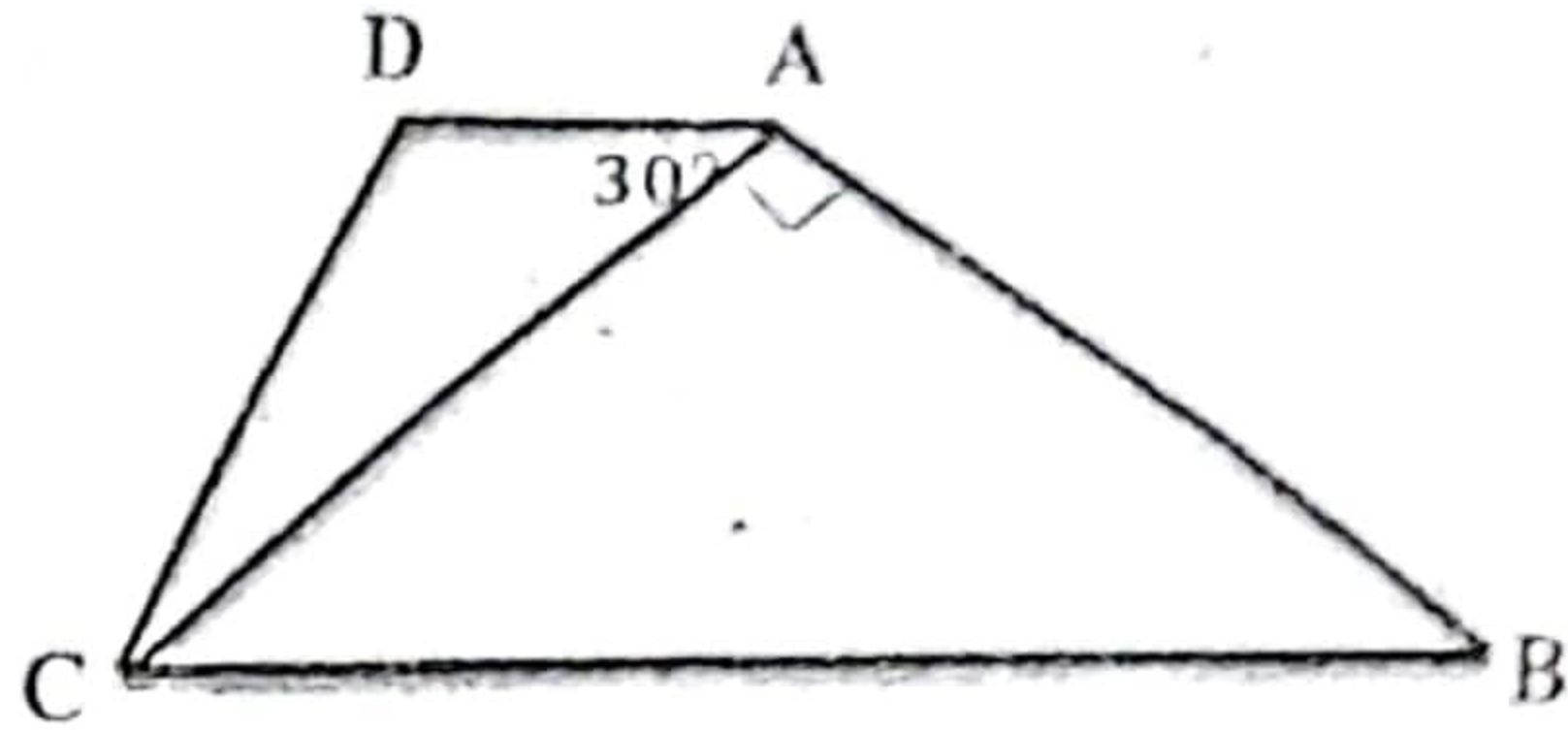
Find by proof : The perimeter of $\triangle$ ABD

(بقية الاسئلة في الورقة الثانية)

Q4 : a) *In the opposite figure :*

$\overline{AD}$ // $\overline{BC}$, m (< BAC) = 90°

and m (< DAC) = 30°

Prove that : BC > AB

b) *In the opposite figure :*

AB = AC = AD = DC

and m (< BAC) = 80°

Find by proof : m (< BCD)
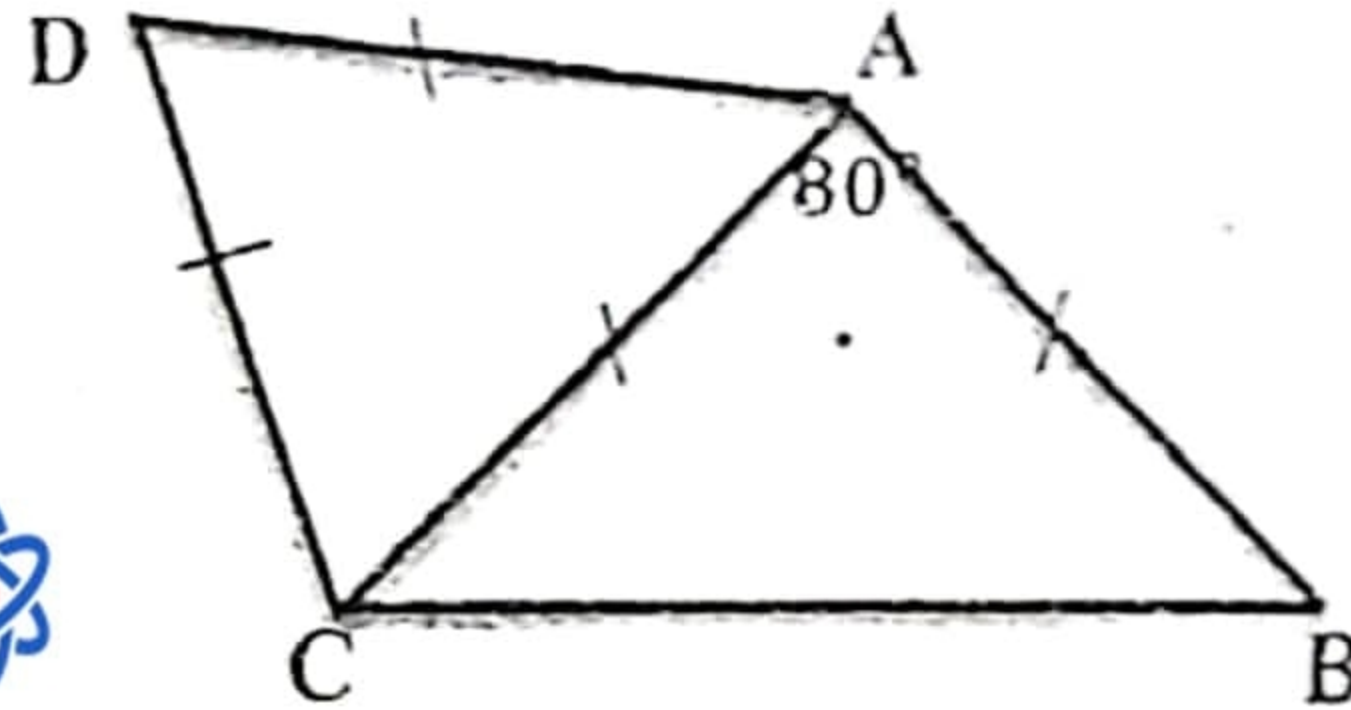
www.exam-eg.com

Q5 : a) *In the opposite figure :*

△ XYZ in which , D is the midpoint of $\overline{XY}$

E is the midpoint of $\overline{XZ}$, YZ = 8 cm

MZ = 6 cm , MY = 5 cm

Find by proof : The perimeter of △ MED

b) *In the opposite figure :*

ABCD is a quadrilateral

in which AB = 4 cm , BC = 5 cm

and CD = 8 cm , AD = 7 cm

Prove that : m (< BAD) > m (< BCD)

Good Luck
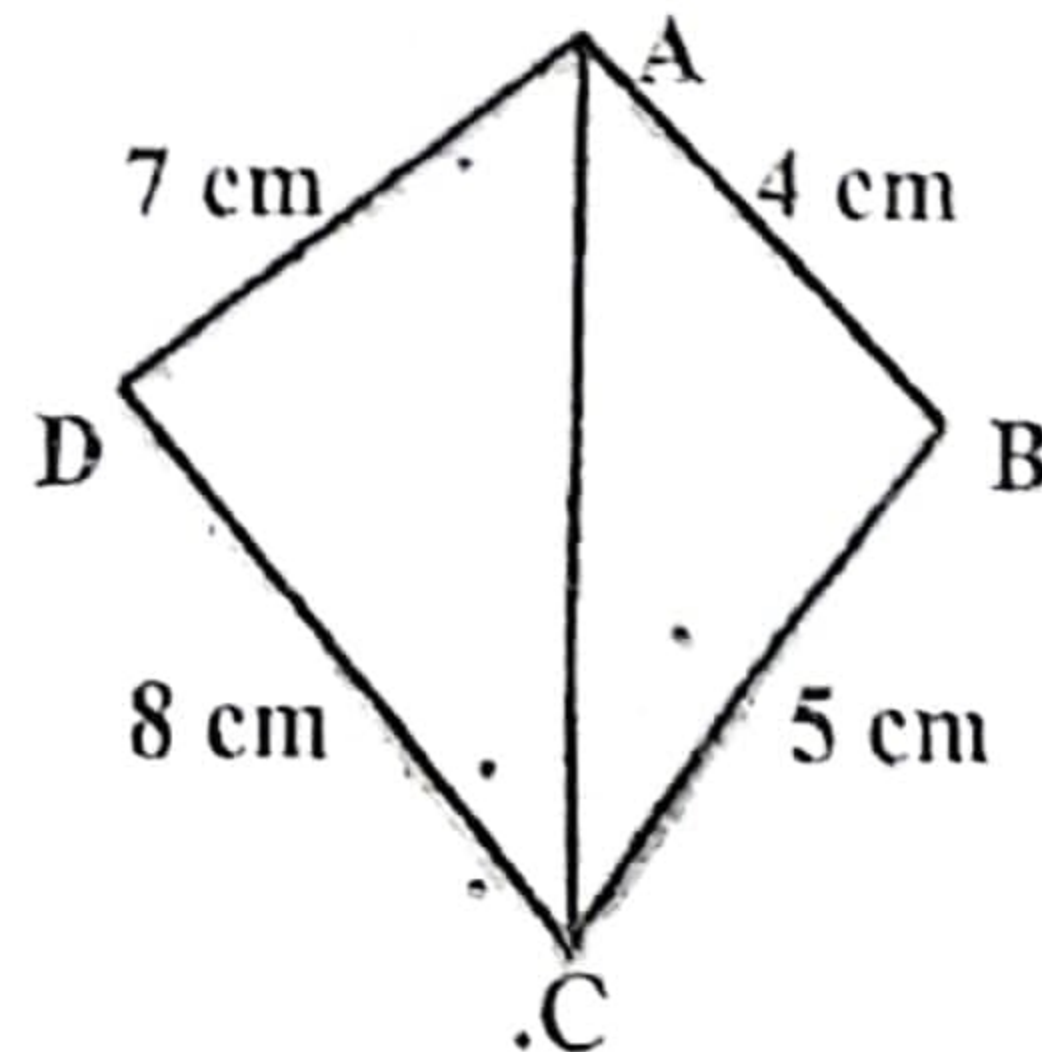
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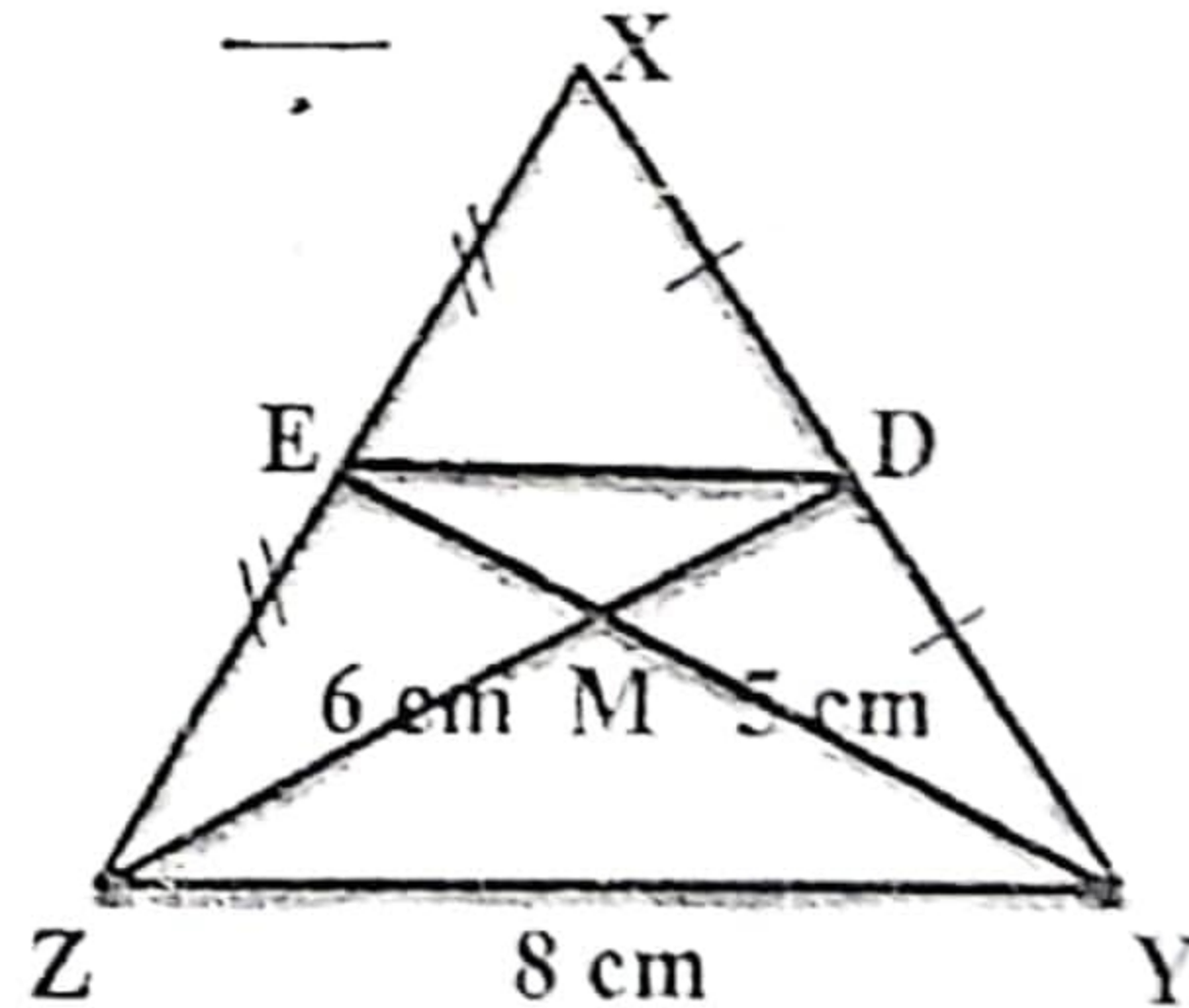
Subject: Geometry

Duration: two hours

Grade: prep. two

Mid-year Exam (2017/2018)

[1] Choose the correct answer :

1) The measure of an enterior angle of an equilateral triangle equals ....

a) $60°$ 　　　 b) $120°$ 　　　 c) $90°$ 　　　 d) $180°$

2) In $\triangle ABC$, if $m(\angle B)+m(\angle C)=90°$, then $\angle A$ is .... angle.

a) acute 　　　 b) right 　　　 c) obtuse 　　　 d) parallel

3) If M is the point of intersection of the medians of $\triangle XYZ$ and D is the midpoint of $\overline{XZ}$, then $MD =$ ....

a) $3 XM$ 　　　 b) $\frac{1}{3}$ YD 　　　 c) $\frac{3}{2}$ YM 　　　 d) 2 MY

4) The triangle whose sides lengths are 2cm , $(x+3)$cm and 5cm is an isosceles triangle if $x =$ ....

a) zero 　　　 b) 1 　　　 c) 3 　　　 d) 2

5) If 6cm , 9cm are two sides lengths of a triangle , then the third side $\in$ ....

a)]3, 15[　　　 b)]3, 15] 　　　 c) [3, 15[　　　 d) [3, 15]

6) XYZ is a triangle in which $YZ > XY$, then $m(\angle Z)$ ....$m(\angle X)$

a) = 　　　 b) < 　　　 c) > 　　　 d) twice

[2] Complete each of the following:

1) The straightline that is perpendicular to a line segment from its middle is called Median ....

2) In $\triangle ABC$, $m(\angle A)=80°$, $AB=AC$ so $m(\angle C)=$ 50 $°$

3) The longest side in the right-angled triangle is the ....

4) In $\triangle LMN$, if $m(\angle M)=90°$, $m(\angle L)=30°$, then $LN=$ .... MN.
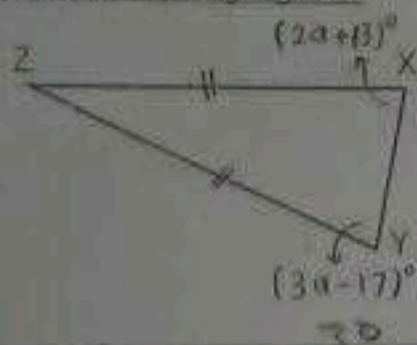
5) If $XZ = \overline{AB}$, then XY .... = AC ....

[3] a) ABC is a right-angled triangle at B,

$m(\angle ACB)=30°$, $AB=5$cm , E is the midpoint of $\overline{AC}$.

b) In the following figure:

$(2a+13)°$

Z

X

Y

$(3a-17)°$

30

Two angles are equal

$ZX=ZY$, $m(\angle X)=(2a+13)°$

, $m(\angle Y)=(3a-17)°$

Find $m(\angle X)$, $m(\angle Y)$ and $m(\angle Z)$.

$(2a+13)=(3a-17)$

$5a = 30$

---

[4] a) In the opposite figure :

ABC is a triangle in which $m(\angle B)=m(\angle C)$, $AB=7cm$

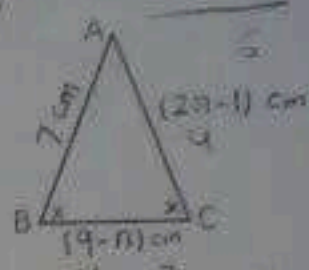Find the perimeter of $\triangle ABC$.

$2a+13=3a-1$

19

$6a$

17

A

7 cm

$(2a-1)$ cm

B

$(a-3)$ cm

C

4

b) In the opposite figure :

M is a point inside $\triangle XYZ$, $\overline{YM} \cap \overline{XZ}=\{E\}$.
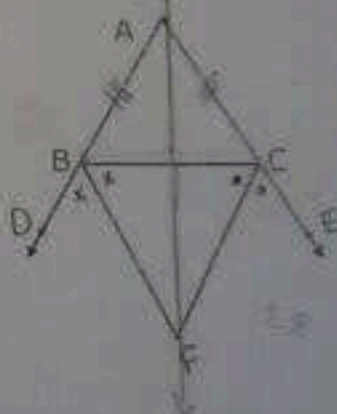
Prove that: $m(\angle XMY) > m(\angle XZY)$

Y

Z

E

M

X

---

[5] a) In the opposite figure :

$AB=AC$, $D \in \overrightarrow{AB}$, $E \in \overrightarrow{AC}$, $\overline{BF}$ bisects $(\angle DBC)$,

$\overline{CF}$ bisects $(\angle BCE)$.

Prove that: (i) $\triangle BCF$ is an isosceles triangle

(ii) $\overrightarrow{AF}$ is the axis of symmetry of $\overline{BC}$

A

B

C

D

E

F

b) In the opposite figure:

ABC is a triangle , $\overline{XY} \parallel \overline{BC}$

$\overline{XY}$ bisects $(\angle BXA)$.

Prove that : $AC > AB$.

A

X

Y

B

C

GOOD LUCK

1) Complete :

a) The longest side in the right angled triangle is ....

b) The axis of symmetry of a line segment is the straight line which .... At its midpoint

c) $\triangle ABC \equiv \triangle XYZ$ then AC = ...

d) if C∈the axis of symmetry of a line segment $\overline{AB}$ then .... = AC

e) The bi- :tor of the vertex angle of the isosceles triangle .... And ....

f) The medians of the triangle are ....

2) Choose the correct answer:

a) The number of axis of symmetry of the isosceles equal   (1 , 2 , 3 , 0)

b) The numbers 5,4,..... can be lengths of a Triangle   (8 , 9 , 10 , 12)

c) The measure of the exterior angle of the equilateral =   (60 , 40 , 100 , 120)

d) XYZ is a △ in which $m(\angle Z) = 70$ and $m(\angle Y) = 60$ then YZ ∠ XY   (> , ≤ , = , Twice)

e) If M is point of intersection of the medians of $\triangle ABC$ and D is midpoint of BC, then AD= ....   (2AM, 3MD , AM , 4MD)

3) a) In the opposite figure;

$m(\angle B) = 90°$, E is midpoint of $\overline{DA}$
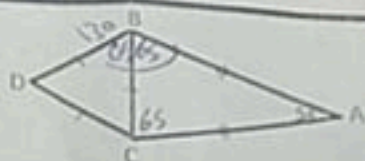F is midpoint of $\overline{DC}$, $m(\angle ACB)=30$
Prove that; AB = EF

b) In the opposite figure;

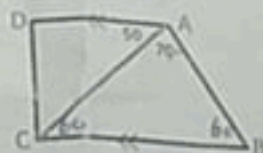$AB < AD$, $BC < CD$
prove that ; $m(\angle ABC) > m(\angle ADC)$

4) a) In the opposite figure

$m(\angle A) = 50$, $AB = AC$,
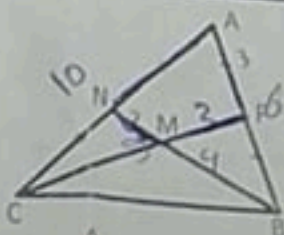and $\widehat{ABC}$ is an equilateral △
Find $m(\angle ABD)$

b) In the opposite figure

$\overline{AD} \parallel \overline{BC}$, $m(\angle DAC)=50°$, $(\angle BAC)=70°$
Prove that : BC > AC

5) a) In the opposite figure

F and N are the midpoints of $\overline{AB}, \overline{AC}$ respectively,
$\overrightarrow{BN} \cap \overrightarrow{CF}=\{M\}$, If AB = 6 cm, AC=10 cm
BM = 4 cm, CF = 9 cm , Find the perimeter of the figure AFMN
AF = 6m=

b) In the opposite figure;

$AB > AC$, $\overrightarrow{BD}$ bisects $\angle B$ and $\overrightarrow{CD}$ bisects $\angle C$
Prove that , BD > DC